

Vol. IV
TRANSCRIPT OF RECORD

Supreme Court of the United States

OCTOBER TERM, 1938

No. 3

**THE SCHRIER-SCHROTH COMPANY,
PETITIONER,**

vs.

**THE CLEVELAND TRUST COMPANY, CHRYSLER
CORPORATION.**

No. 4

**THE ABERDEEN MOTOR SUPPLY COMPANY,
PETITIONER,**

vs.

**THE CLEVELAND TRUST COMPANY, CHRYSLER
CORPORATION.**

No. 5

THE F. E. ROWE SALES COMPANY, PETITIONER,

vs.

**THE CLEVELAND TRUST COMPANY, CHRYSLER
CORPORATION.**

**ON WRITS OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT
OF APPEALS FOR THE SIXTH CIRCUIT.**

PETITION FOR CERTIORARI FILED JANUARY 7, 1939.

CERTIORARI GRANTED MAY 31, 1939.

United States Circuit Court of Appeals

FOR THE SIXTH CIRCUIT.

THE CLEVELAND TRUST COMPANY,
CHRYSLER CORPORATION,
Plaintiffs-Appellants,

VS.

THE SCHRIER-SCHROTH COMPANY,
Defendant-Appellee.

No. 4045.
EQUITY.

THE CLEVELAND TRUST COMPANY,
CHRYSLER CORPORATION,
Plaintiffs-Appellants,

VS.

THE ABERDEEN MOTOR SUPPLY COMPANY,
Defendant-Appellee.

No. 4046.
EQUITY.

THE CLEVELAND TRUST COMPANY,
CHRYSLER CORPORATION,
Plaintiffs-Appellants,

VS.

THE F. E. ROWE SALES COMPANY,
Defendant-Appellee.

No. 4047.
EQUITY.

APPEALS FROM
THE DISTRICT COURT OF THE UNITED STATES,
FOR THE NORTHERN DISTRICT OF OHIO,
EASTERN DIVISION.

TRANSCRIPT OF RECORD VOLUME IV.

Balance of Defendants' Exhibits and Notes
Re Cases Nos. 4046 and 4047.

EVANS & MCCOY,
Bulkley Bldg., Cleveland, Ohio,
RICHEY & WATTS,
Union Trust Bldg., Cleveland, Ohio,
Attorneys for Plaintiffs-Appellants.

JOHN H. BRUNINGA,
Railway Exchange Bldg., St. Louis, Missouri,

KWIE, HUDSON & KENT,
Union Trust Bldg., Cleveland, Ohio,
Attorneys for Defendants-Appellees.

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Attorneys for Plaintiffs-Appellants.

JOHN H. BRUNINGA,
Railway Exchange Bldg., St. Louis, Missouri,

KWIB, HUDSON & KEVIN,
Union Trust Bldg., Cleveland, Ohio,
Attorneys for Defendants-Appellees.

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68-C.	Opinion of Court of Appeals of District of Columbia in Interference No. 49,575.	832	1546
69.	Record of Interference No. 49,570	W
69-A(1).	Opinion of Law Examiner in Interference No. 49,570	832	1548
69-A(2).	Opinion of Examiner of Interferences in Interference No. 49,570	832	1551
69-B(1).	Petition for Rehearing in Interference No. 49,570	832	1554
69-B(2).	Opinion of Board in Interference No. 49,570	832	1558
69-B(3).	Opinion of the Board of Appeals in Interference No. 49,570	832	1558

No.		Offered Vol. II	Printed Vol. III
69-C.	Opinion of the Court of Customs and Patent Appeals in Interference No. 49,570	832	1562
70-A.	Opinion of the Examiner in Interference No. 49,571	832	1566
70-B.	Opinion of the Board in Interference No. 49,571	832	1570
71-A.	Head Portion of Piston of Franquist Type	944	W
71-B.	Skirt Portion of Piston of Franquist Type	944	W
72-A.	Head Portion of Piston of Maynard Type	945	W
72-B.	Skirt Portion of Piston of Maynard Type	945	W
73.	Ricardo Type Piston	951	W
74.	Drawing Showing Dimensions of Defendants' Exhibit Monckmeier 3-V	952	1573
75.	Drawing Showing Dimensions of Defendants' Exhibit Monckmeier 3-W	952	1576
76.	Ford 1933 Piston	1048	W
77.	Agreement, Aug. 4, 1917, between Mobers-Pitts, Cleveland Trust-Sawyer, Sterling-Alexander (Formal Offer not included in Narrative)		W
78.	Ditto of March 7, 1922 (Formal Offer not included in Narrative)		W
79.	Drawing of Iron Piston Used by Dorris Motor	1062	W
80.	Sterling Piston with Steel Strut	1066	W
81.	Deed Entry, Gallik vs. Packard Motor Car Co.	1090	W
82.	Amplifier Receivership Statement of Feb. 6, 1914	1090	W
83.	Amplifier Receivership Journal Entry	1090	W
84.	Bill of Examiner in Abandoned Application of Ray B. Day for Patent	1091	1577

No.		Offered Vol. II	Printed Vol. III
85.	Certified Copy of the Drawings of the Abandoned Application of Ray E. Day, filed January 10, 1923, Serial No. 611,698	1091	1579
86.	Patent Office Interference .....	...	W

DEFENDANTS' EXHIBITS.

(W in last column signifies *Withdrawn or Omitted*)

No.		Offered Vol. I	Printed Vol. III
A.	Drawing produced by Venner of Long 1916 Piston	352	1585
B.	Piston Used by Franklin	352	W
C.	Two Paragraphs from Service Depart- ment Bulletin, Sheet No. 262, April 8, 1920, of Franklin Automobile Co., en- titled "Long Type Pistons"	352	1587
D.	Seven paragraphs from Service Depart- ment Bulletin, Sheet No. 289, Nov. 11, 1920, of Franklin Automobile Co., en- titled "New Design for Series Nine"...	352	1588
E.	Piston Purchased from M. K. Weems...	352	W
F.	Long 1916 Type Piston	352	W
G.	Piston Purchased from Franklin Factory	352	W
H.	Article from Franklin Service Bulletin No. 348, April 18, 1932, of Franklin Au- tomobile Co., entitled "The Oval Type Piston"	352	1589
I.	Article from Page 1, Franklin Service Bulletin No. 369, Feb. 20, 1923, of Frank- lin Automobile Company, entitled "Pis- ton and Wrist Pin Knocks," and Draw- ing on page 2, entitled "Drill Jig for Ex- tra Oil Holes in Piston"	352	1591
J.	Forfeited and Abandoned Application of William M. Venner for Improvement in Pistons, filed April 12, 1920, Serial No. 373,240	354	1595

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K.	Venner Drawing, Feb. 16, 1920.....	354	1603
L.	Letter from George J. Oltsch to Wm. M. Venner, dated Sept. 22, 1920	354	1605
M.	Photostat of page 149, showing Cut only in "The Gasoline Automobile," by Heldt, Vol. I	368	1607
N.	Article from Pages 8 and 9 of Manual for Trouble Shooters of Franklin Automobile Company, entitled "Piston Slap" ..	372	1609
O.	Drawing produced by Chadwick, Long 6-Slot Piston	392	1611
P(1 & 2).	Core Box	392	W
Q.	Core Box	392	W
R.	Small Piston of Type made for Oldsmobile Car or Northway Motor	392	W
S.	Tracing of "Oldsmobile Six" Piston produced by Chadwick	392	1613
T-1.	Tracing produced by Chadwick of Long Pistons for Ford, Model T Car	392	1615
T-2.	Tracing produced by Chadwick of Long Pistons for Essex Car	392	1617
T-3.	Tracing produced by Chadwick of Long Pistons for Duesenberg Car	392	1619
U.	Weems' Advertisement on Page 124 of "Motor Age" for July 7, 1921	392	1621
V, V-1 to V-7.	Books of the Weems Company (Marked for Identification, 385) .....	...	W
W.	Photostat of Trunk Piston added to by Chadwick to show T-Slot, Long Piston ..	396	1623
X.	Digest of Defendants' Exhibit X, Agreement dated Sept. 20, 1919 between E. C. Long and M. K. Weems	407	1625
Y.	Photostat of Drawing by Stallman, Long 1916 Piston (Identified, 452) .....	...	1627
Z.	L. M. Stallman's Report, dated March 18, 1919, entitled "Test on Long Pistons"	453	1629

Nos.		Offered Vol. I	Printed Vol. III
AA.	Digest of Defendants' Exhibit AA, License Agreement dated March 20, 1919, between E. C. Long and Franklin Mfg. Co.	454	1632
CC'(1).	Blueprint D-793X of The Aluminum Castings Co. (Drawing of proposed design of piston for H. H. Franklin Mfg. Co.)	466	1633
CC'(2).	Blueprint D-944X of The Aluminum Castings Co. (Drawing of proposed design of piston for H. H. Franklin Mfg. Co.)	466	1634
CC'(3).	Blueprint D-960X of The Aluminum Castings Co. (Drawing of proposed design of piston for H. H. Franklin Mfg. Co.)	466	1635
DD.	Sketch of Long Piston seen by Royalty in 1913	435	1637
EE.	Sketch of Long Piston by Royalty in February, 1918	437	1638
FF.	Sketch of other views of piston shown in Exhibit EE	438	1639
GG.	Photostat of Pattern Record Card marked D-8764	413	1640
HH.	Photostat of Pattern Record Card marked A-640	414	1641
II.	Photostat of Pattern Record Card marked B-122	414	1642
JJ.	Photostat of Pattern Record Card marked H-4	415	1643
KK.	Photostat of Pattern Record Card marked C-123	415	1644
LL.	Card bearing notation, "Use Patt. A-640 as per instructions on core box"	415	1645
MM.	Card bearing designation, "Patt. No. A-641"	422	1646
NN.	Casting	427	W

Nos.		Offered Vol. I	Printed Vol. III
AAA.	Strut Type Piston (Offered as Plaintiff's Exhibit No. 41)	591	W
BBB.	Piston, Six Cylinder Chevrolet	55	W
CCC.	Piston, Four Cylinder Chevrolet	590	W
DDD.	(No Exhibit) .....	....	....
EEE.	Cut-in-half Piston like Spillman and Mooers	590	W
FFF.	Piston made in Permanent Mold	590	W
3-G.	Cross-section of Piston like Exhibit 1..	590	W
3-H.	Cast Iron Type Piston	590	W
3-I.	Clamping Device used as Can Opener....	590	W
3-J.	T-slot Piston used in Ford 8	590	W
3-K.	Piston, Silv-O-Lite	590	W
3-L.	Circular of Silv-O-Lite Piston	590	W
3-M.	Willys-Overland Rough Piston Casting (Marked for Identification, 135) .....	...	W
3-N.	Oakland Rough Piston Casting (Marked for Identification, 135) .....	...	W
3-O.	T-slot Piston, Another Piston.....	590	W
3-P.	Small Section, Alleged Spillman and Mooers	590	W
3-Q.	Ribbed Piston, Alleged Franquist 1,153,902 Structure	590	W
3-R.	Half-Section, Gulick Piston	590	W
3-S.	Page 274 of "The Automobile Engineer" of October, 1918, Vol. VIII, No. 119.....	590	1647
3-T.	Piston in Exemplification of Gulick Patent	590	W
3-U.	Letter, McCoy to J. King Harness, Dec. 30, 1932	590	W
3-V.	Monckmeier Cast Iron Split Skirt Piston	590	W
3-V'.	Kant Skore Piston	590	W

		Offered Vol. I	Printed Vol. III
3-W.	Monckmeier Aluminum Split Shirt Piston	590	W
3-X.	Letter, dated June 20, 1916, with Monckmeier Photo	301	1648
3-Z.*	Depositions: Venner, Chadwick, Stellman, Royalty, Barton, Gilbert	472	W
4-A.	Stellman Sketch of Maynard Patent Structure	590	1649
4-B.	Photostat of Roots Superimposed on Ebbs	590	1651
4-C.	Decision of Law Examiner, dated April 4, 1924, in Interference No. 49,569	532	1653
4-D.	Decision of Law Examiner, dated April 4, 1924, in Interference No. 49,574	532	1659
4-E.	Decision of Law Examiner, dated April 4, 1924, in Interference No. 49,580	532	1661
4-F.	Decision of Law Examiner, dated April 7, 1925, in Interference No. 49,575	532	1663
4-G.	Pages 362, 363 and 364 of "Automotive Industries" for Jan. 29, 1920	537, 591	1667
4-H.	Prior Art Patents	539, 591	....

U. S. PATENTS:

No. 700,309	May 20, 1902	H. E. Ebbs	1671
No. 908,569	Jan. 5, 1909	F. D. Howe	1675
No. 1,031,212	Jul. 2, 1912	E. Van Beyer	1679
No. 1,092,870	Apr. 14, 1914	E. O. Spillman and L. P. Mooers	1683
No. 1,153,902	Sept. 21, 1915	G. E. Franquist	1687
No. 1,174,092	Mar. 7, 1916	W. L. Schoengarth	1693
No. 1,195,936	Aug. 22, 1916	C. White	1699

* Exhibit 3-Z is erroneously referred to in the Narrative, at page 472, as Exhibit 3-Y.

No. 1,229,540	June 12, 1917	E. O. Spillman.....	1703
No. 1,379,184	Sept. 17, 1918	J. G. Vincent.....	1707
No. 1,583,021	Oct. 29, 1918	C. C. Anderson....	1713
No. 1,594,833	Feb. 18, 1919	H. R. Ricardo.....	1717
No. 1,535,176	Dec. 16, 1919	A. Spillman	1723
No. 1,395,441	Nov. 1, 1921	E. C. Long.....	1727
No. 1,489,499	Apr. 8, 1924	E. C. Long.....	1731
No. 1,872,772	Aug. 23, 1932	E. C. Long.....	1735

BRITISH PATENTS:

No. 19,559 of 1890	James Roots	1739
No. 17,256 of 1907	John Vernon Pugh.....	1743
No. 6,826 of 1912	William Frederick Rainforth	1751
No. 12,772 of 1914	Samuel Octavins Ferry	1755
Specification 140,988	Ernest Walter Hives.....	1759

FRENCH PATENTS:

No. 468,595 of 1914	Chenard and Walcker.....	1763
	(Translation of foregoing).	1767
No. 434,147 of 1911	M. Chas. Emile Serex.....	1769
	(Translation of foregoing).	1773
No. 16,362 of 1912	M. Chas. Emile Serex.....	1777
	(Translation of foregoing).	1781

GERMAN PATENT:

No. 176,983 of 1906	Otto Listmannayer.....	1785
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ADDITIONAL U. S. PATENTS:

No. 1,557,625	Oct. 30, 1925	L. M. Stellmann...	1789
No. 1,942,022	Jan. 19, 1932	S. D. Hartog.....	1797
No. 1,499,073	June 24, 1924	L. H. Pomeroy....	1803

No.		Officed Vol. I	Printed Vol. IV
5-H ₁	Stipulated Digest of the Decision of the Law Examiner in Interference No. 45,351	593	2279
5-H ₂	Stipulated Digest of the Decision of the Examiner in Interference No. 45,351...	593	2279
5-H ₃	Stipulated Digest of the Decision of the Board of Appeals in Interference No. 45,351	593	2279
5-I	Books of Account Pages V-1, V-2, V-4.. Bill of Complaint in Case No. 3510 in the U. S. District Court for the Northern District of Ohio, The Cleveland Trust Co. and Chrysler Corp. vs. The Simmons Mfg. Co. and Sterling Products Corp....	594	2280
5-J	Letter dated October 17, 1932 from Anna Landon Duke to J. H. Bruninga	595	2283
		Officed Vol. II	Printed Vol. IV
5-K ₁	Letter dated May 4, 1915 from Walter L. Schoengarth to Louis Bagger & Co.	899	2304
5-K ₂ (1)	Tracing of Schoengarth Piston	899	2305
5-K ₂ (2)	Tracing of Schoengarth Piston	899	2307
5-K ₃	Three pages Description by Schoengarth of "The Adjustable Gas Engine Piston"	899	2309
5-K ₄	Letter dated May 13, 1915 from Louis Bagger & Co. to W. L. Schoengarth....	899	2310
5-K ₅	Letter dated May 22, 1915 from W. L. Schoengarth to Louis Bagger & Co.	899	2311
5-K ₆	Letter dated May 27, 1915 from Louis Bagger & Co. to W. L. Schoengarth....	899	2311
5-K ₇	Letter dated July 29, 1914 from W. L. Schoengarth to Louis Bagger & Co.	899	2312
5-K ₈	Letter dated August 5, 1915 from Louis Bagger & Co. to W. L. Schoengarth....	899	2313

See		Official Vol. II	Printed Vol. IV
5-K ₉	Certified copy of Application Papers of the Schoengarth Patent No. 1,174,092 ..	899	2314
5-K ₁₀	Schoengarth Piston	907	W
5-K ₁₁	Letter dated April 2, 1917 from Louis Bagger & Co. to Walter Schoengarth....	997	2326
5-K ₁₂	Envelope sent to Schoengarth at Cleve- land	912	2327
5-L	Franquist Piston Construction.....	1051	W
5-M	List of Patents to Packard Motor Com- pany (Discussed, 889)	1091	2329

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INDEPENDENT EXHIBIT C-1

Supply Report of June 30, 1937 of The Cleveland Trust Company.

(Filed January 27, 1938.)

SUMMARY OF PISTONS MADE AND SOLD FOR THE YEAR 1934 AS REPORTED BY LICENSEES UNDER THE PISTON PATENT ESTATE

LICENSEE	TOTAL PRODUCTION	NET SALES	ROYALTIES PAID
Atlantic Company of America	152,004 224,000 220,000 24 300,000 1,215	152,705 270,000 220,007 24 312,210 1,215	1,770,000 \$12,700.00
The East-Shore Piston Company	41,004 24,002 21,107 20,000	41,004 24,002 21,221 20,000	200,772 \$ 1,007.73
Valter M. Lovett Co., W. M. Lovett Corporation and W. M. Lovett	72,512 45,543 100,100 145,700	72,500 44,804 24,007 145,306	500,077 \$ 2,000.77
The National Piston Company, Inc.	— — — —	— — — —	
	2,322,703	2,322,000	\$12,700.00

QUARTERLY STATEMENT
ALUMINUM COMPANY OF AMERICA
TO THE CLEVELAND TRUST COMPANY, Trustee
Cleveland, Ohio

Period End, Quarter 1937 (From April 1st, 1937 to June 30th, 1937)

Total quantity of pictures sold or otherwise
 Reported of per Exhibit "I" attached 1,122,830

Less:

Total quantity of pictures sold for which
 vendors have been credited, per Exhibit
 "II" attached

21,945

Not

1,112,885 (already reported)

Total Reported pictures reported by The Kent-
 Shaw Picture Company, as made and
 sold, per Exhibit "III" attached

144,885

Less:

Total Reported pictures reported by The Kent-
 Shaw Picture Company, for which
 vendors have been credited

2,890

Not

141,995

Total Reported pictures reported by Walker
 M. Lovett, W. M. Lovett Corporation
 and Walker M. Lovett Company as
 made and sold, per Exhibit "IV" at-
 tached

95,417

Less:

Total Reported pictures reported by Walker
 M. Lovett, W. M. Lovett Corporation
 and Walker M. Lovett Company for
 which vendors have been credited

2,582

Not

95,835 (already reported)

Total Reported pictures reported by The Na-
 tional Picture Company, as made and
 sold, per Exhibit "V" attached

None

Less:

Total Reported pictures reported by The Na-
 tional Picture Company for which
 vendors have been credited

80

Not

80 (already reported)

Total Reported pictures reported by.....
as made and
 sold, per Exhibit "VI" attached

.....

Less:

Total Reported pictures reported by.....
for which vendors
 have been credited

.....

Not

Grand Total

Pictures at regular rate of \$2.50 each

Less: Supply paid by our Check No. dated

The Treasury Inc.

Item No of Drawing
Blanketing Pattern

Quantity

Item No of Drawing
Blanketing Pattern

Quantity

3460X

1288

3467X

1288

3461X

280

3468X

1080

3462X

1880

3469X

1143

3463X

180

3470X

5412

3464X

480

3471X

883

3465X

180

3472X

5100

3466X

881

3473X

1003

3467X

500

3510X

3

3468X

1873

3533X

200

3469X

280

3630X

251

3470X

500

3646X

300

3471X

180

3656X

752

3472X

500

3660X

2228

3473X

514

3694X

611

3474X

1824

3720X

785

3759X

1504

3728X

1114

3765X

2750

3739X

1

3766X

1725

3773X

1177

3767X

6085

3783X

290

3770X

3000

3784X

202

3776X

4

3807X

447

3785X

1800

3843X

57

3804X

83855

3844X

2

3805X

580

3876X

14162

3806X

538883

3828X

1778

3811X

1982

3829X

38

3812X

2005

3844X

5

3842X

4824

3861X

2

3843X

10978

3863X

750

3844X

500

3879X

147

3845X

6880

3881X

913

3846X

1471

4006X

14

3847X

1788

4016X

19

3848X

38

4017X

4

3849X

882

4020X

3

3850X

8185

4024X

19

3851X

1018

4025X

1789

3852X

8118

4026X

19

3853X

8118

4027X

19

3854X

8118

4028X

19

3855X

8118

4029X

19

Total "2" over

Summary "T"

ALUMINUM COMPANY OF AMERICA

To The Cleveland Trust Company, Trustees

Cleveland, Ohio

Period 2nd Quarter 1937

(From April 1st, 1937 to June 30th, 1937)

In compliance with license agreement dated April 28, 1934, which the Aluminum Company of America has entered into with you in relation to pistons per se it reports that during the above period:

(A) It sold or otherwise disposed of the following pistons, which embodied, when sold or otherwise disposed of by the licensee, or which to the licensee's knowledge were to be modified or fabricated by the licensee in such a way as to embody some alleged invention said to be covered by one or more claims of the Letters Patent and application included in said license:

Number of Drawing Illustrating Piston	Quantity	Number of Drawing Illustrating Piston	Quantity
		4074X	315
		4075X	850
		4082X	16
		4083X	68
		4084X	493
		4087X	1640
		4100X	500
		4101X	433
		4106X	10
		4109X	313
		4110X	500
		4111X	500
		4120X	63
		4122X	3006
		4172X	57
		4180X	303
		4184X	26
		4185X	11
		4186X	13
		4187X	13
		4188X	13
		4189X	13
		4190X	13
		4191X	13
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		4545X	13
		4546X	1

EXHIBIT "II"

ALUMINUM COMPANY OF AMERICA
To THE CLEVELAND TRUST COMPANY, Trustee
Cleveland, Ohio

Period 2nd Quarter 1937

(From April 1st, 1937 to June 30, 1937)

(B) And the following is the number of such pistons sold by the licensee and for which our vendees have been credited during such period:

Number of Drawing Illustrating Piston	Quantity	Number of Drawing Illustrating Piston	Quantity
Photostat	10	4109X	14
1829X	2	4110X	2
1861X	1269	4159X	9
2253X	125	4169X	5015
2403X	15	4173X	53
2484X	1	4238X	428
2485X	12		
2487X	4		
2489X	295		
2500X	4		
2502X	20		
2541X	5		
2743X	1		
2759X	19		
2765X	1		
2766X	2		
2767X	77		
2770X	6		
2785X	8		
2804X	2462		
2830X	5		
2854X	3777		
2911X	520		
2923X	2		
2944X	73		
2945X	69		
2960X	1		
2964X	68		
2967X	19		
2968X	17		
2969X	22		
2980X	524		
2981X	123		

Of Cleveland Trust Co., June 30, 1937

1913

Number of Drawing Illustrating Plates	Quantity	Number of Drawing Illustrating Plates	Quantity
3318X	1731		
3346X	8		
3367X	17		
3402X	434		
3406X	78		
3470X	4		
3471X	2		
3472X	4		
3519X	106		
3646X	1		
3656X	3		
3694X	16		
3773X	2		
3807X	14		
3876X	6348		
4057X	46		
4058X	10		
4106X	10		

Total "B" 31945

EXHIBIT "III"

ALUMINUM COMPANY OF AMERICA

To THE CLEVELAND TRUST COMPANY, *Trustee*

Cleveland, Ohio

Period 1937 Quarter 2nd

(From April 1, 1937 to June 30, 1937)

(C) Licensed Pistons reported by The Kent-Shore
Piston Company of Cincinnati, Ohio, as made and sold
during such period; as per copy of report attached.

Number of Drawing Illustrating Plates	Quantity	Number of Drawing Illustrating Plates	Quantity
		433	29321
		434	11064
		15	3310

Total "C" 14675

(D) Licensed pistons reported by The Kent-Shore
Piston Company for which its vendors have been cred-
ited during such period; as per copy of report attached.

Number of Drawing Illustrating Piston	Quantity	Number of Drawing Illustrating Piston	Quantity
		433	1778
		434	1081
		Total "D"	2859
		Net	141836

EXHIBIT "IV"

ALUMINUM COMPANY OF AMERICA

TO THE CLEVELAND TRUST COMPANY, Trustees
Cleveland, Ohio

Period 1927 Quarter 2nd.

(From April 1927 to June 30, 1927)

(E) Licensed pistons reported by Walker M. Levett, W. M. Levett Corporation and Walker M. Levett Company, of New York City, as made and sold during such period; as per copy of report attached.

Number of Drawing Illustrating Piston	Quantity	Number of Drawing Illustrating Piston	Quantity
		CA 1	36,440
		2	23,903
		3	11,761
		5	12,732
		6	3,196
		11	618
		13	2,085
		14	7,562
		Total "E"	93,217

(F) Licensed pistons reported by Walker M. Levett, W. M. Levett Corporation and Walker M. Levett Company, of New York City, for which their vendors have been credited during such period; as per copy of report attached.

Number of Drawing Illustrating Piston	Quantity	Number of Drawing Illustrating Piston	Quantity
		1	40
		2	962
		3	172
		5	886
		6	429
		13	3
		Total "F"	2,562
		Net	95,655

EXHIBIT "V"

ALUMINUM COMPANY OF AMERICA

To THE CLEVELAND TRUST COMPANY, Trustee
Cleveland, Ohio

Period 2nd. Quarter 1927

(From April 1st, 1927 to June 30th, 1927)

(G) Licensed Pistons reported by The National Piston Company, of New York City, as made and sold during such period; as per copy of report attached.

Number of Drawing Illustrating Piston	Quantity	Number of Drawing Illustrating Piston	Quantity
		Total "G"	None

(H) Licensed Pistons reported by The National Piston Company, for which its vendees have been credited during such period; as per copy of report attached.

Number of Drawing Illustrating Piston	Quantity	Number of Drawing Illustrating Piston	Quantity
		Total "H"	80
		Net	80

QUARTERLY STATEMENT

OF

**LICENSED PISTONS SOLD OR OTHERWISE DISPOSED OF
BY**

THE KANT-SKORE PISTON COMPANY

**A SUB-LICENSEE OF ALUMINUM COMPANY OF AMERICA
DURING**

Period 1927 Quarter 2nd

(From April 1, 1927 to June 30, 1927)

**To Aluminum Company of America
Pittsburgh, Pa.**

In compliance with House agreement which the undersigned has with you in relation to pistons per se, it reports that during the above period:

(C) It made and/or sold or otherwise disposed of the following pistons which contained or embodied some invention covered by or which were sold, or were after sale or at any other time modified, or to be, or capable of being modified so as to be covered by any one or more of the claims of any of the U. S. Patents or applications included in the contract between Aluminum Company of America and The Cleveland Trust Company, dated April 26, 1924 and marked "I."

Number of Drawing Illustrating Piston	Quantity	Number of Drawing Illustrating Piston	Quantity
		433	22821
		434	119264
		15	2610
		Total Item C	144695

(D) The following is the number of such pistons sold by the licensee and for which the vendees have been credited during such period:

Number of Drawing Illustrating Piston	Quantity	Number of Drawing Illustrating Piston	Quantity
		433	1778
		434	1061
		Total Item D	2839
		Net	141856

Remarks:

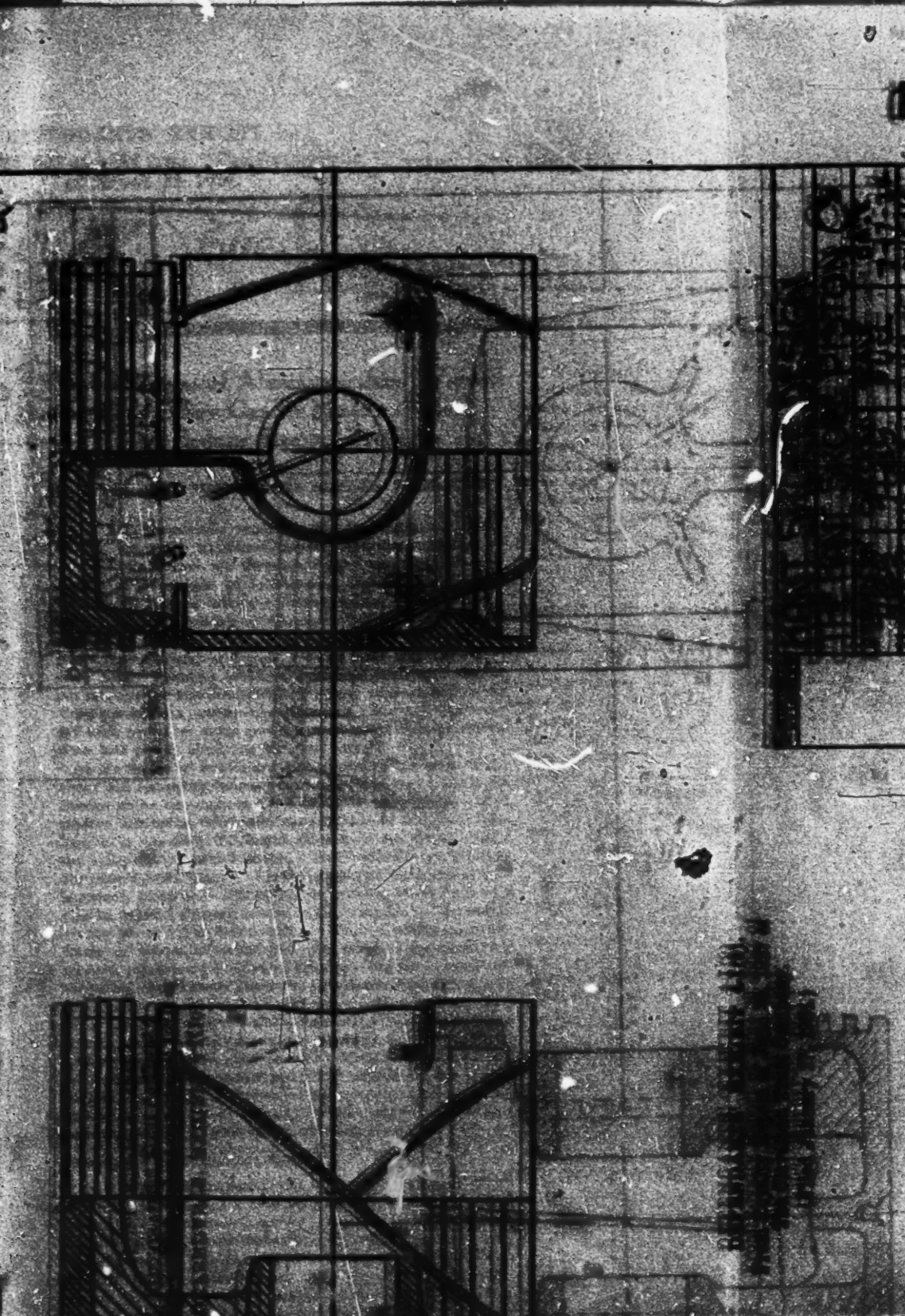
Signed: THE KANT-SKONE PISTON COMPANY,
By H. J. HAYES, Treas.

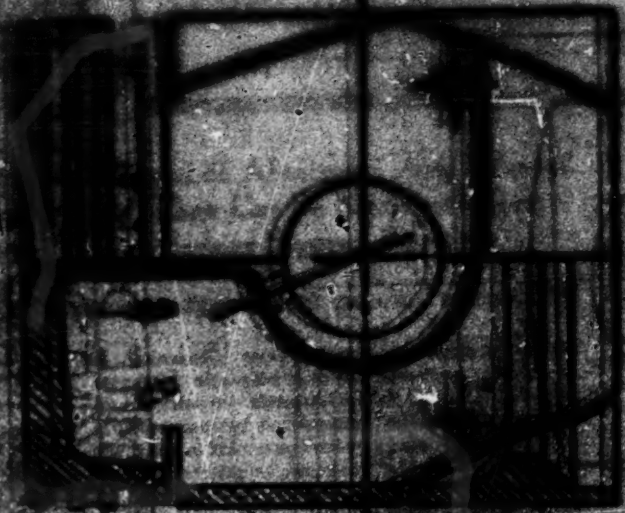
Note: (1) Statements due quarterly within the months of January, April, July and October.

(2) Royalties due must be paid within 30 days after date of filing quarterly statement.

(3) Oath of Licensee waived by Licensor without relinquishing its right thereto.

(4) This report to be made in triplicate.

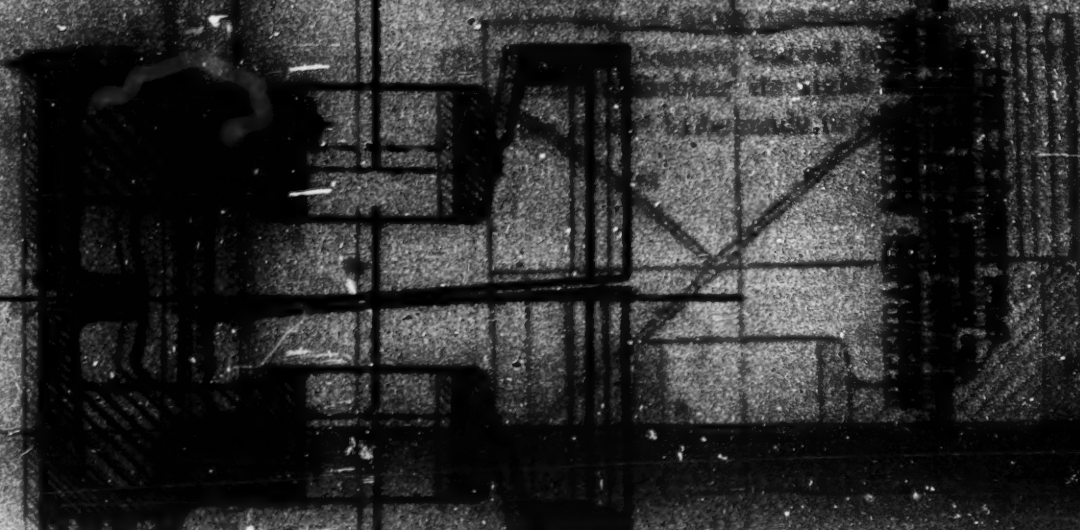






1. The following information is being furnished to you for your information only. It is not to be used for any other purpose.

THE UNITED STATES DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF STAFF
WASHINGTON, D. C. 20315



A high-contrast, black and white photograph of a dark, textured surface, possibly a book cover or a piece of fabric, with a prominent vertical crease or fold line running down the center. The texture is grainy and uneven, with some lighter patches visible against the dark background. The lighting is dramatic, creating deep shadows and bright highlights that emphasize the surface irregularities.

A high-contrast, black and white image showing a close-up of a textured surface, possibly a book cover or a piece of paper, with a prominent vertical crease or fold line running down the center. The texture is grainy and uneven, with dark and light areas suggesting depth and wear.



March 1941

Approved: The Honorable Henry C. ...
in D. J. ...

For the Secretary of the ...
...
...



WALKER, W. C.

1925

1925-1926

To A. J. Walker

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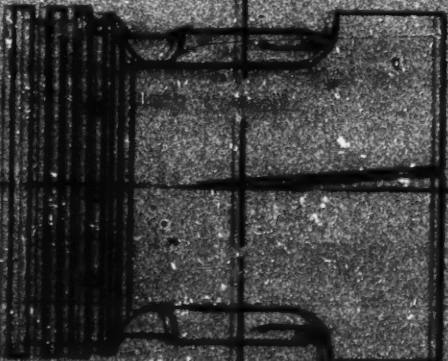
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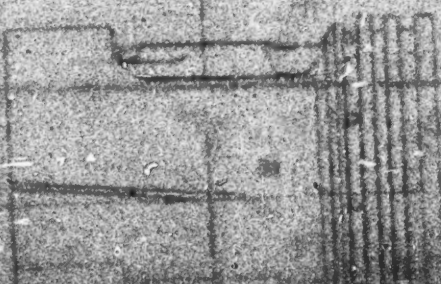
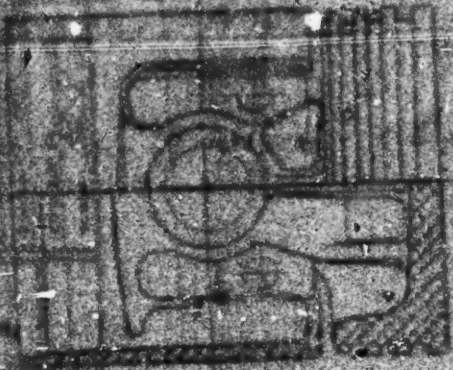
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**QUARTERLY STATEMENT
OF
LICENSED PATENTS SOLD OR OTHERWISE DISPOSED OF
BY
WALKER M. LEVETT CO., W. M. LEVETT CORPORATION
AND W. M. LEVETT (CALLED LEVETT)**

A SUB-LICENSEE OF ALUMINUM COMPANY OF AMERICA
DURING

Period 1927 Quarter 2nd

(From April 1927 to June 30, 1927)

To Aluminum Company of America
Pittsburgh, Pa.

In compliance with license agreement which the undersigned has with you in relation to pistons per se, it reports that during the above period:

(E) It made and/or sold or otherwise disposed of the following pistons which contained or embodied some invention covered by or which were sold, or were after sale or at any other time modified, or to be, or capable of being modified so as to be covered by any one or more of the claims of any of the U. S. Patents or applications included in the contract between Aluminum Company of America and The Cleveland Trust Company, dated April 26, 1924 and marked "I."

Number of Drawing Illustrating Piston	Quantity	Number of Drawing Illustrating Piston	Quantity
		CA 1	36440
		2	23903
		3	11761
		5	12732
		6	3126
		11	618
		13	2085
		14	7532
		Total Item E	98317

(F) The following is the number of such pistons sold by the licensee and for which the vendors have been credited during such period:

1924

Debitants' Exhibit 4-1, Royalty Report

Number of Drawing Illustrating Piston	Quantity	Number of Drawing Illustrating Piston	Quantity
		1	40
		2	982
		3	172
		5	586
		6	499
		13	3
		Total Item F	2562
		Net	96655

Remarks:

Signed: WALKER M. LEVITT Co., W. M. LEVITT
CORPORATION AND W. M. LEVITT
By R. E. VALCOURT, Sec'y.

- Note: (1) Statements due quarterly within the months
of January, April, July and October.
(2) Royalties due must be paid within 30 days
after date of filing quarterly statement.
(3) Oath of Licensee waived by Licensor without
relinquishing its right thereto.
(4) This report to be made in triplicate.

QUARTERLY STATEMENT

OF

LICENSED PISTONS SOLD OR OTHERWISE DISPOSED OF

BY

THE NATIONAL PISTON COMPANY, INC.

A SUB-LICENSEE OF ALUMINUM COMPANY OF AMERICA

DURING

Period 2nd Quarter 1927

(From April 1st to June 30th)

To Aluminum Company of America
Cleveland, Ohio.

In compliance with license agreement which the un-
dersigned has with you in relation to pistons per se, it
reports that during the above period:

(G) It made and/or sold or otherwise disposed of
the following pistons which contained or embodied some
invention covered by or which were sold, or were after

Of Cleveland Trust Co., June 25, 1927

1928

sale or at any other time modified, or to be, or capable of being modified, so as to be covered by any one or more of the claims of any of the U. S. Patents or applications included in the contract between Aluminum Company of America and The Cleveland Trust Company, dated April 26, 1924 and Marked "I."

Number of Drawing Illustrating Piston	Quantity	Number of Drawing Illustrating Piston	Quantity
		Total Item G	None

(H) The following is the number of such pistons sold by the licensee and for which the vendees have been credited during such period:

Number of Drawing Illustrating Piston	Quantity	Number of Drawing Illustrating Piston	Quantity
		Total Item H	80
		Net	(80)

Remarks:

Signed: THE NATIONAL PISTON COMPANY, INC.
By F. M. TAYLOR.

Note: (1) Statements due quarterly within the months of January, April, July and October.

(2) Royalties due must be paid within 30 days after date of filing quarterly statement.

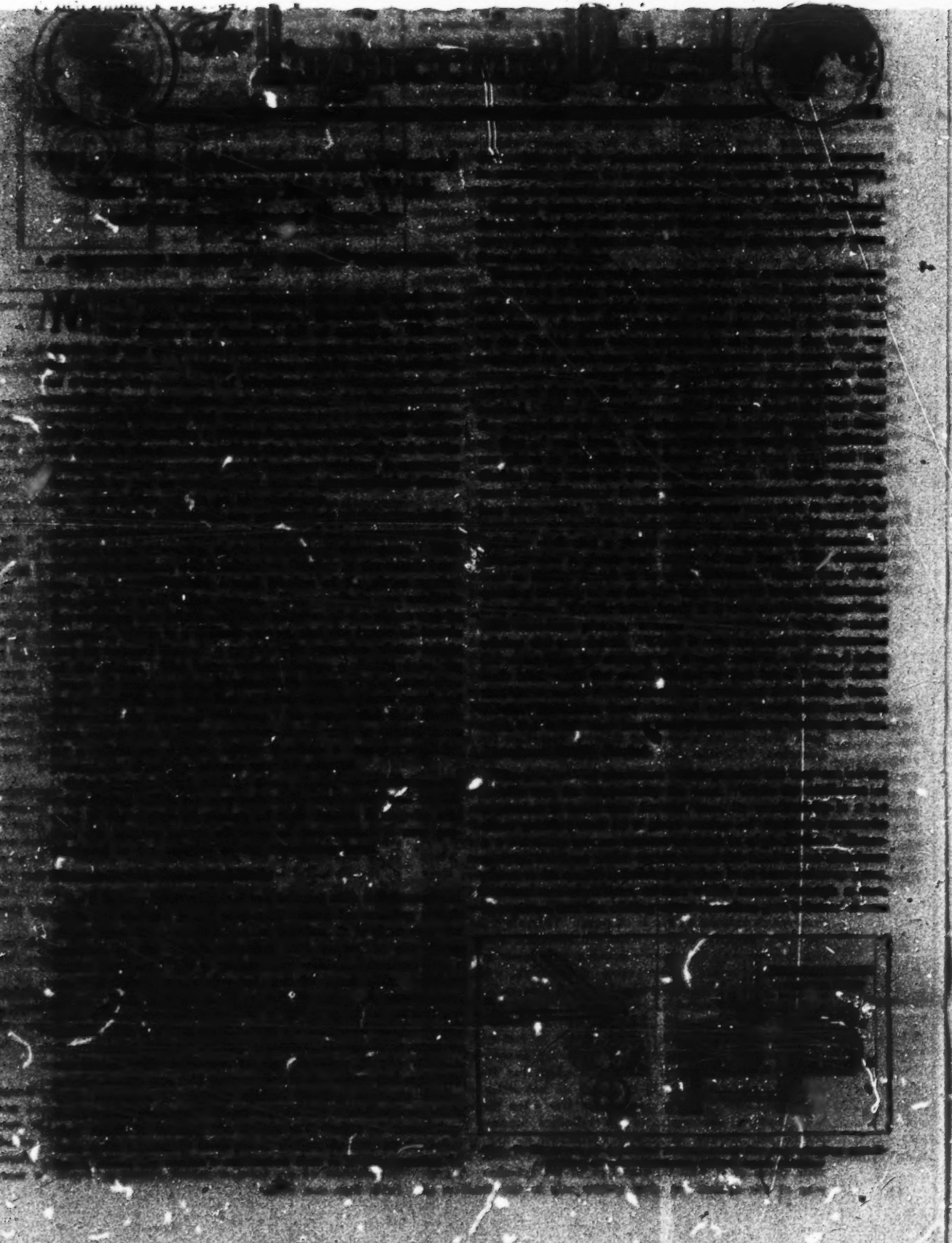
(3) Oath of Licensee waived by Licensor without relinquishing its right thereto.

(4) This report to be made in triplicate.

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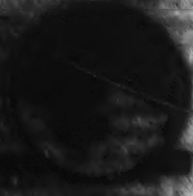
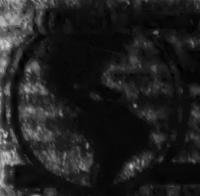




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Page 100, 101 and 102 from "The Development of the Automobile"

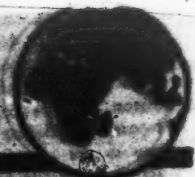
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The Design of Plates and Plates with Reinforcement in Compression, War, Weights and Po

DATA FOR DESIGNING PLATES WITH REINFORCEMENT IN COMPRESSION AND TENSION IN COMPRESSION

THROUGHOUT the various stages of design, the designer is faced with the problem of determining the shape of the plates and the reinforcement to be used. The designer must first determine the shape of the plates and the reinforcement to be used. The designer must first determine the shape of the plates and the reinforcement to be used.

In the following, the designer is faced with the problem of determining the shape of the plates and the reinforcement to be used. The designer must first determine the shape of the plates and the reinforcement to be used. The designer must first determine the shape of the plates and the reinforcement to be used.

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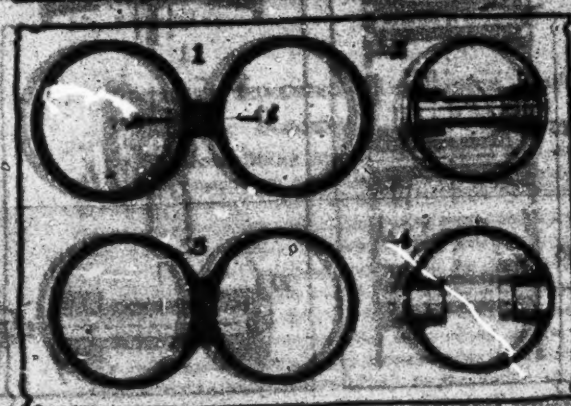


Fig. 4-4—Illustrating deformation of plates and sections

of the plates and the reinforcement. The designer must first determine the shape of the plates and the reinforcement to be used. The designer must first determine the shape of the plates and the reinforcement to be used. The designer must first determine the shape of the plates and the reinforcement to be used.

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Design of Reinforcement

The designer must first determine the shape of the plates and the reinforcement to be used. The designer must first determine the shape of the plates and the reinforcement to be used. The designer must first determine the shape of the plates and the reinforcement to be used.

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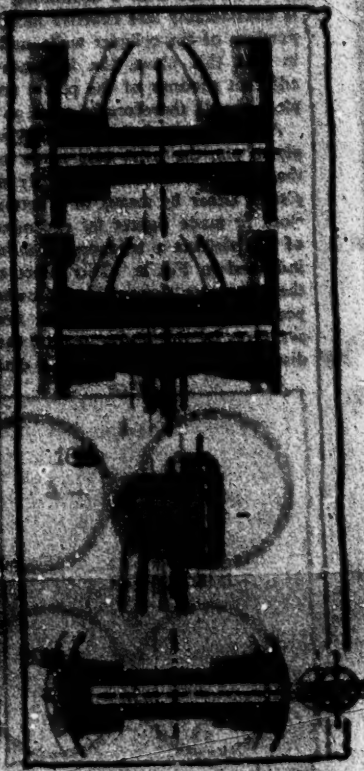
[The letter states the contribution is within the weekly gross amount brought from the sale of the paper, is that of making broadly available through various agencies, and is added to the gross amount of the amount of said day's business.]

IN FIG. 12, A SECOND EMBODIMENT OF A WAFER 1200 IS SHOWN IN THE FORM OF A DISC 1202 OF THE SAME MATERIAL AS THE DISC 1002. THE DISC 1202 IS PROVIDED WITH A PLURALITY OF PATTERNED LAYERS 1204, 1206, 1208, 1210, 1212, 1214, 1216, 1218, 1220, 1222, 1224, 1226, 1228, 1230, 1232, 1234, 1236, 1238, 1240, 1242, 1244, 1246, 1248, 1250, 1252, 1254, 1256, 1258, 1260, 1262, 1264, 1266, 1268, 1270, 1272, 1274, 1276, 1278, 1280, 1282, 1284, 1286, 1288, 1290, 1292, 1294, 1296, 1298, 1300, 1302, 1304, 1306, 1308, 1310, 1312, 1314, 1316, 1318, 1320, 1322, 1324, 1326, 1328, 1330, 1332, 1334, 1336, 1338, 1340, 1342, 1344, 1346, 1348, 1350, 1352, 1354, 1356, 1358, 1360, 1362, 1364, 1366, 1368, 1370, 1372, 1374, 1376, 1378, 1380, 1382, 1384, 1386, 1388, 1390, 1392, 1394, 1396, 1398, 1400, 1402, 1404, 1406, 1408, 1410, 1412, 1414, 1416, 1418, 1420, 1422, 1424, 1426, 1428, 1430, 1432, 1434, 1436, 1438, 1440, 1442, 1444, 1446, 1448, 1450, 1452, 1454, 1456, 1458, 1460, 1462, 1464, 1466, 1468, 1470, 1472, 1474, 1476, 1478, 1480, 1482, 1484, 1486, 1488, 1490, 1492, 1494, 1496, 1498, 1500, 1502, 1504, 1506, 1508, 1510, 1512, 1514, 1516, 1518, 1520, 1522, 1524, 1526, 1528, 1530, 1532, 1534, 1536, 1538, 1540, 1542, 1544, 1546, 1548, 1550, 1552, 1554, 1556, 1558, 1560, 1562, 1564, 1566, 1568, 1570, 1572, 1574, 1576, 1578, 1580, 1582, 1584, 1586, 1588, 1590, 1592, 1594, 1596, 1598, 1600, 1602, 1604, 1606, 1608, 1610, 1612, 1614, 1616, 1618, 1620, 1622, 1624, 1626, 1628, 1630, 1632, 1634, 1636, 1638, 1640, 1642, 1644, 1646, 1648, 1650, 1652, 1654, 1656, 1658, 1660, 1662, 1664, 1666, 1668, 1670, 1672, 1674, 1676, 1678, 1680, 1682, 1684, 1686, 1688, 1690, 1692, 1694, 1696, 1698, 1700, 1702, 1704, 1706, 1708, 1710, 1712, 1714, 1716, 1718, 1720, 1722, 1724, 1726, 1728, 1730, 1732, 1734, 1736, 1738, 1740, 1742, 1744, 1746, 1748, 1750, 1752, 1754, 1756, 1758, 1760, 1762, 1764, 1766, 1768, 1770, 1772, 1774, 1776, 1778, 1780, 1782, 1784, 1786, 1788, 1790, 1792, 1794, 1796, 1798, 1800, 1802, 1804, 1806, 1808, 1810, 1812, 1814, 1816, 1818, 1820, 1822, 1824, 1826, 1828, 1830, 1832, 1834, 1836, 1838, 1840, 1842, 1844, 1846, 1848, 1850, 1852, 1854, 1856, 1858, 1860, 1862, 1864, 1866, 1868, 1870, 1872, 1874, 1876, 1878, 1880, 1882, 1884, 1886, 1888, 1890, 1892, 1894, 1896, 1898, 1900, 1902, 1904, 1906, 1908, 1910, 1912, 1914, 1916, 1918, 1920, 1922, 1924, 1926, 1928, 1930, 1932, 1934, 1936, 1938, 1940, 1942, 1944, 1946, 1948, 1950, 1952, 1954, 1956, 1958, 1960, 1962, 1964, 1966, 1968, 1970, 1972, 1974, 1976, 1978, 1980, 1982, 1984, 1986, 1988, 1990, 1992, 1994, 1996, 1998, 2000, 2002, 2004, 2006, 2008, 2010, 2012, 2014, 2016, 2018, 2020, 2022, 2024, 2026, 2028, 2030, 2032, 2034, 2036, 2038, 2040, 2042, 2044, 2046, 2048, 2050, 2052, 2054, 2056, 2058, 2060, 2062, 2064, 2066, 2068, 2070, 2072, 2074, 2076, 2078, 2080, 2082, 2084, 2086, 2088, 2090, 2092, 2094, 2096, 2098, 2100, 2102, 2104, 2106, 2108, 2110, 2112, 2114, 2116, 2118, 2120, 2122, 2124, 2126, 2128, 2130, 2132, 2134, 2136, 2138, 2140, 2142, 2144, 2146, 2148, 2150, 2152, 2154, 2156, 2158, 2160, 2162, 2164, 2166, 2168, 2170, 2172, 2174, 2176, 2178, 2180, 2182, 2184, 2186, 2188, 2190, 2192, 2194, 2196, 2198, 2200, 2202, 2204, 2206, 2208, 2210, 2212, 2214, 2216, 2218, 2220, 2222, 2224, 2226, 2228, 2230, 2232, 2234, 2236, 2238, 2240, 2242, 2244, 2246, 2248, 2250, 2252, 2254, 2256, 2258, 2260, 2262, 2264, 2266, 2268, 2270, 2272, 2274, 2276, 2278, 2280, 2282, 2284, 2286, 2288, 2290, 2292, 2294, 2296, 2298, 2300, 2302, 2304, 2306, 2308, 2310, 2312, 2314, 2316, 2318, 2320, 2322, 2324, 2326, 2328, 2330, 2332, 2334, 2336, 2338, 2340, 2342, 2344, 2346, 2348, 2350, 2352, 2354, 2356, 2358, 2360, 2362, 2364, 2366, 2368, 2370, 2372, 2374, 2376, 2378, 2380, 2382, 2384, 2386, 2388, 2390, 2392, 2394, 2396, 2398, 2400, 2402, 2404, 2406, 2408, 2410, 2412, 2414, 2416, 2418, 2420, 2422, 2424, 2426, 2428, 2430, 2432, 2434, 2436, 2438, 2440, 2442, 2444, 2446, 2448, 2450, 2452, 2454, 2456, 2458, 2460, 2462, 2464, 2466, 2468, 2470, 2472, 2474, 2476, 2478, 2480, 2482, 2484, 2486, 2488, 2490, 2492, 2494, 2496, 2498, 2500, 2502, 2504, 2506, 2508, 2510, 2512, 2514, 2516, 2518, 2520, 2522, 2524, 2526, 2528, 2530, 2532, 2534, 2536, 2538, 2540, 2542,

The following table shows the results of the survey. The first column shows the number of respondents who answered each question. The second column shows the percentage of respondents who answered each question. The third column shows the number of respondents who answered each question correctly. The fourth column shows the percentage of respondents who answered each question correctly.

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THE UNIVERSITY OF CHICAGO



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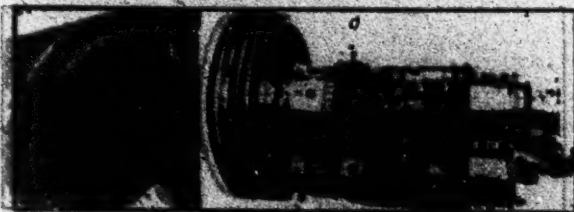
THE UNITED STATES OF AMERICA

In the large majority of constructions the connecting-rod turns upon the pin and the latter is stationary, but in a few instances the pin is secured to the connecting-rod and the latter turns in bearings in the tube. Fig. 18 shows a design of this type. The connecting-rod is split and secured to the recessed piston pin by a cotter bolt. Expansion of the pin is here wholly without influence upon the clearances of the piston.

Fig. 19 shows a pin used for heavy motors. At the small end of the conical pin there is milled out a recess in which there is held a yoke projecting two inches in the tube. A small screw with a leaf spring interacting with a notch in the end of the piston pin secures the yoke.—From *The Motorcar*, February 10.

Dry Disk Clutch and Mitred Sliding Gear in Leading French Sixer

AMONG construction features departing from standard design in the six-cylinder 25-horsepower Delahaye-Bellevalle cars the most noticeable relate to the clutch, shown in Fig. 20, and the transmission gear, Fig. 21. The multiple-disk clutch is composed of sheet steel disks lined with thermoid washers and mounted in a cup secured to the flywheel. The cup is perforated to allow heat to escape and is provided with interior ribs which retain the disks. The action is dry, and



Figures 20 and 21—Clutch and gear of Delahaye-Bellevalle Sixer

centrifugal action is depended upon to keep dust out. The maintaining of maintenance is the object in view. Two universals are used on the clutch shaft.

The characteristic of the transmission gear lies in the use of mitre gears for the third speed as well as for the reverse, with silence in view for the drives most frequently used. The difficulties which were encountered in the matter of getting a mitred gear to slide into engagement as easily as a straight one, especially in the case of the third speed, were overcome, it is said, only after prolonged experimentation. Other difficulties related to the end-thrust pressures created by the operation of these gears. Both the primary and the secondary shafts are supported at the middle by ball-bearings.—From *La Vie Automobile*, February 14.

Bugatti's Inverted N-Elliptic Spring for Roomy Light Cars

AMONG recent British patents Eric Walford finds one for a spring suspension taken out by Bugatti, whose leap to prominence among makers of light fast cars in Europe has caused widespread attention. The patent shows an improvement over the quarter-elliptic anchored to the extreme rear of the axle from and reaching forward to the axle with which

it aids from imparting to a car with short wheelbase the choppy body movements which are normally obtained only by a longer wheelbase—which advantage it shares with the previous and better known type—the improved but more complicated spring seems to ensure an almost straight up-and-down movement of the axle, since the flexions of the two springs counteract each other with regard to the axle movement. Very little sliding motion in the universals will thus result from shocks, and brake action will also be more uniform. In addition it may perhaps be possible to obtain desirable effects by having the springs so proportioned that the oscillations of one break up those of the other. The special design of the semi-elliptic, which will make it flex into an S-shape, must be severe on the clip but apparently results in an efficient utilization of the amount of steel in it.—*EN*].

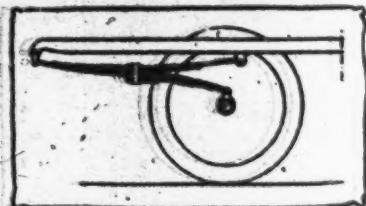


Fig. 22—New Bugatti spring for short wheelbases

New System for Keeping Voltage Constant Heralded from England

AN interesting new system for keeping the current delivered by a dynamo for lighting purposes in an automobile at a constant voltage, independently of the speed of the motor, is brought out by the Spiral Regulating Dynamo Company of London, England, and is illustrated in Figs. 23 and 24. The armature shaft is in the form of a sleeve riding upon a main shaft, in the surface of which there is cut a spiral groove of geometrically progressive pitch. A steel ball lodged in the spiral groove and at the same time in a straight groove in the hollow of the armature shaft maintains a driving connection between these two shafts. The main shaft is driven, and if its speed is increased the armature tends to lag behind, owing to the increased magnetic pull between it and the pole pieces. The lagging is made possible by the nature of the driving connection and therefore takes place, the armature shaft sliding along the main shaft against the resistance of a helical spring, and by this action the armature is withdrawn from its position in the magnetic field between the pole pieces. By suitably proportioning the strength of the spring and the pitch of the spiral groove, the effect of this lateral displacement of the armature with relation to the field can be so regulated that the actual number of lines of force cut by the armature windings during a given period of time is kept constant—this determining the voltage.

In addition to the main control, it is necessary at very low speeds to prevent the current from the battery from flowing through the armature coils and thus going to waste, as it has a tendency to do whenever the voltage of the battery current exceeds the voltage of the dynamo. To this end, whenever the motor speed falls off and the armature moves to the right, far enough, it engages a trigger attached to a movable contact piece and thereby causes it to slide out of engagement with the fixed contact piece, breaking the connection with the battery. On the other hand, when the armature moves to the left with increase of the motor speed, it is released from the trigger, a small spring forces the contacts together and the circuit is re-established.

is in the design of the drive. It is shown a design of this type. The connecting-rod is slit and secured to the reversed piston pin by a center bolt. The shape of the pin is here chiefly without influence upon the character of the piston.

Fig. 19 shows a plan used for heavy motors. At the small end of the crank pin there is milled out a recess in which there is held a yoke projecting two notches in the hole. A small screw with a heli spring terminating with a notch in the end of the piston pin secures the yoke.—From *Der Motorwagen*, February 19.

Dry Disk Clutch and Mitted Sliding Gear in Loading French Sixer

A LONG characteristic feature departing from standard design in the six-cylinder 25-horsepower Delamare-Bellville cars is the most noticeable relative to the clutch, shown in Fig. 20, and the transmission gear, Fig. 21. The multiple-disk clutch is composed of sheet steel disks lined with thermoid washers and inserted in a cup secured to the flywheel. The cup is perforated to shed heat to escape and is provided with interior ribs which retain abrasive disks. The action is dry, and



Fig. 20 and 21—Clutch and gears of Delamare-Bellville Sixer

centrifugal action is depended upon to keep dust out. The maintaining of maintenance is the object in view. Two universal joints are used on the clutch shaft.

The characteristic of the transmission gear lies in the use of more gears for the third speed as well as for the reverse, with silence in view for the drives most frequently used. The difficulties which were encountered in the matter of getting a mitted gear to slide into engagement as easily as a straight one, especially in the case of the third speed, were overcome, it is said, only after prolonged experimentation. Other difficulties related to the end-thrust pressures created by the operation of these gears. Both the primary and the secondary shafts are supported at the middle by ball-bearings.—From *Le Vie Automobile*, February 14.

Bugatti's Inverted K-Elliptic Spring for Roomy Light Cars

A LONG classic British sports car, the Richard Mads car for a spring suspension takes out by Bugatti, whose leap to prominence among makers of light cars was in Europe. It is a most interesting creation. The patent shows an improvement upon the quarter-elliptic method to the extreme end of the vehicle frame, and reaching forward to the axle, with which the Bugatti cars of 1912 model now in use are equipped and which is also used on small Bugatti cars under license, and it appears that Bugatti declares the more recent design to have been found quite superior. The accompanying illustration shows the new spring to be a semi-elliptic to the middle of which a forward-bending quarter-elliptic is clipped.—From *The Automobile Engineer*, February.

better known type—the improved but more complicated spring seems to ensure an almost straight up-and-down movement of the axle, since the flexure of the two springs counter each other with regard to the axle movement. Very little sliding motion in the universal will thus result from shocks, and brake action will also be more uniform. In addition it may perhaps be possible to obtain desirable effects by having the springs so proportioned that the oscillations of one break up those of the other. The special design of the semi-elliptic, which will make it flex into an S-shape, must be severe on the clip but apparently results in an efficient utilization of the amount of steel in it.—E.A.]



Fig. 22—New Bugatti spring for short wheel base

New System for Keeping Voltage Constant Heralded from England

A N interesting new system for keeping the current delivered by a dynamo for lighting purposes in an automobile at a constant voltage, independently of the speed of the motor, is brought out by the Spiral Regulating Dynamo Company of London, England, and is illustrated in Figs. 23 and 24. The armature shaft is in the form of a sleeve riding upon a main shaft, in the surface of which there is cut a spiral groove of geometrically progressive pitch. A steel ball, lodged in the spiral groove and at the same time in a straight groove in the hollow of the armature shaft maintains a driving connection between these two shafts. The main shaft is driven, and if its speed is increased the armature tends to lag behind, owing to the increased magnetic pull between it and the pole pieces. The lagging is made possible by the nature of the driving connection and therefore takes place, the armature shaft sliding along the main shaft against the resistance of a helical spring, and by this action the armature is withdrawn from its position in the magnetic field between the pole pieces. By suitably proportioning the strength of the spring and the pitch of the spiral groove, the effect of this lateral displacement of the armature with relation to the field can be so regulated that the actual number of lines of force cut by the armature windings during a given period of time is kept constant—this determining the voltage.

In addition to the main circuit, it is necessary at very low speeds to prevent the current from the battery from flowing through the armature coils and thus going to waste, as it has a tendency to do whenever the voltage of the battery current exceeds the voltage of the dynamo. To this end, whenever the motor speed falls off and the armature moves to the right, far enough, it engages a trigger attached to a movable contact plate and thereby causes it to slide out of engagement with the fixed contact plate, breaking the connection with the battery. On the other hand, when the armature moves to the left with increase of the motor speed it is released from the trigger, a small spring forces the contacts together and the circuit is re-established. This cut-out switch arrangement is shown in Fig. 23.

With this system it has been shown that the lamps can be lighted directly from the dynamo, as may be desirable if the battery should fail. It is also claimed that the power consumed in running the dynamo is constant, since the magnetic torque is constant and no power is wasted in creating counter-currents at any motor speed.—From *The Auto*, February 14.

IN RE FILE WRAPPERS.

PRINTER'S NOTE: The system of typography employed in the following File Wrappers (Defendants' Exhibits, 4-L, 4-L₁, 4-L₂, 4-L₃, and 4-L₄) to simulate Patent Office markings, is as follows:

1. Words or phrases cancelled are indicated by "cancelled" type;
2. Words or phrases inserted in *substitution for words cancelled* and words or phrases added (other than of the kind indicated in paragraph 3) are indicated by "black-letter" type;
3. Words or phrases added or inserted by way of amendment of claims are indicated by "italic" type;
4. The insertion of whole new claims is indicated by the use of light rule above and below and along the left margin of such claims.
5. Cancellation of sentences or paragraphs by the drawing of diagonal cancellation lines across the face thereof is indicated by the use of heavy black rule above and below and along the left margin of the portions cancelled.
6. Marginal notations are indicated by block indentions, with black letter words or figures therein, opposite the cancellation or addition.

DEFENDANTS' EXHIBIT 4-L.

File Wrapper and Contents of Gulick Patent in Suit.

(Filed January 27, 1934.)

390

**DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE**

To all persons to whom these presents shall come, Greeting:

This is to Certify that the annexed is a true copy from the records of this office of the File Wrapper and Contents, in the matter of the Letters Patent of Edward J. Gulick, Assignor, by Mesne Assignments, to The Cleveland Trust Company, Number 1,815,733, Granted July 21, 1931, for Improvement in Pistons.

IN TESTIMONY WHEREOF I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the City of Washington, this fourteenth day of January, in the year of our Lord one thousand nine hundred and thirty-three and of the Independence of the United States of America the one hundred and fifty-seventh.

THOMAS E. ROBERTSON,
Commissioner of Patents.

(Seal)

ATTEST: D. E. WILSON,
Chief of Division.

(Old Wrapper with Record of Actions Inside)

Number (Series of 1925 1915)

1,815,733

204681

PATENT No. 1815733

1917

Div. 12

Dated Jul 27 1931
(Ex'r's Book) 147-179-B

Name Edward J. Gulick

of

State of (See jacket inside)

Invention

Original

Application filed complete

Renewed

PARTS OF APPLICATION FILED

Petition, Specification, }
 Oath, First Fee \$20, } , 19
 1 sheets Drawings, }

Certificate of
 Correction
 September 22, 1931

Examined and passed for
 Issue May 16 1931 , 1931

Reexam'd and
 passed for
 Issue , 19

C. C. Henry Exr. Div. 12

Exr. Div.

Notice of Allowance May 16 1931

Notice of Allow-
 ance , 19

By Commissioner.

By Commissioner.

Ex cl \$13.00

Final Fee \$25

June 18, 1931

Final Fee , 19

Ex cl \$10.00

June 25, 1931

Attorney

Associate Attorney

Slip

No. of Claims Allowed 43 Print Claims 1 in O. G.
 Class 74-108.

Title as Allowed Piston

Division of App., No., filed, 19...

733

12426

(\$15 Rec'd Nov 30 1917 C. C. U. S. Pat. Office **Ok a**)

204661

Division 12, Paper No. 1

Dec 3 1917

U. S. Patent Office

PETITION

To the Commissioner of Patents:

Your Petitioner, Edward J. Gulick, residing at Elkhart, County of Elkhart, State of Indiana, and whose P. O. Address is P. O. Box 553, Elkhart, Indiana, prays that Letters Patent of the United States may be granted to him for the Improvement in Hydrocarbon Motors, set forth in the annexed specification; and he hereby appoints Milton Tibbetts, (Registration No. 5403), of the City of Detroit, County of Wayne, State of Michigan, his Attorney, with full power of substitution and revocation, to prosecute this application; to make alterations and amendments therein; to receive the patent, and to transact all business in the Patent Office, and before the

Courts, D. C., connected with the application or with the patent granted thereupon, and to do all other lawful acts and things which he if personally present could.

EDWARD J. GULICK.

SPECIFICATION

To Whom It May Concern:

Be it known that I, Edward J. Gulick, a citizen of the United States, and resident of Elkhart, Elkhart County, State of Indiana, have invented certain new and useful improvements in **Hydrocarbon Motors Pistons** of which the following is a specification:

1.

204661-1

MT:MEG

12427

B-1733

SB

per H This invention relates to **hydrocarbon mo-**
per H **tors and particularly to pistons therefor.**

Title One of the objects of the present invention
change is to provide a piston which **is will not adapted**
per C **to expand against the cylinder wall to such an**
per H **extent as to seize seize or stick.**

per E Another object of the invention is to provide a piston with a skirt or guide portion slightly separated from the head of the piston and split longitudinally so that it will not expand in circumference with a force great enough to cause the piston to stick in the cylinder.

per E Another object of the invention is to provide a piston with **improved lubricating means for lubricating conduits leading from the exterior of the piston to the piston pin bosses.**

Another object of the invention is to rigidly support the piston pin bosses of a piston from the piston walls. (4) H¹

Other objects of the invention will appear from the following description taken in connection with the drawings which form a part of this specification, and in which:

Fig. 1 is a longitudinal sectional view, through a piston embodying the invention;

Fig. 2 is similar to Fig. 1 taken at right angles thereto, being on the line 2-2 of Fig. 3;

Fig. 3 is a transverse section substantially on the line 3—3 of Fig. 1;

Fig. 4 is a transverse section on the line 4—4 of Fig. 1;

2.

204661—2

12428

Fig. 5 is a view similar to Fig. 1, showing a slightly different form of piston embodying the invention; and

Fig. 6 is a top view of the piston shown in Fig. 5.

Referring to the drawings, 10 represents **Per E** the head portion of a piston and 11 is the skirt
 “ **E** or guide portion which is shown as separated at its periphery from the head leaving an annular slit or opening 12 therebetween. The head portion of the piston is provided with an annular groove 13 for a piston ring 14, and the upper end of the skirt portion
Per E 11 is formed with a recess shown in the form of an annular groove 15 for the purpose of collecting the oil that may be scraped from the cylinder during the reciprocation of the piston.

The piston is also provided with a pair of separated piston pin bosses 16 which are formed with integral supporting flanges 17 extending around the bosses and arranged intermediate their ends. These flanges extend laterally of their respective bosses in the form of webs 18 which integrally connect with the wall of the

Per E skirt guide portion 11 as shown in the drawings:
 “ **E** Since there are two of these webs or walls 18 for each of the bosses 16 there are therefore four connections of the webs 18 to the skirt or guide portion 11. These connections are in the four longitudinal lines as shown at 19.

“ **E** The flanges 17 also extend upwardly from the bosses in the form of webs or walls 20 leading to the head 10 and thereby connecting the bosses with the head. Thus, the bosses are connected to both the head and the skirt so that the latter is held in its proper position directly beneath the head as shown in Figs. 1 and 2.

In order that the skirt may not expand an undue amount when the piston is heated, as under operating

3.

204661—3

12429

Insert E¹ conditions, it (3) **E¹** is split longitudinally as at 21. This split is slightly diagonal to prevent
Insert E² wearing a groove in the cylinder (3) **E²**

The piston is further provided with conduits 22 shown in the form of pipes extending from the recess or groove 15 at the upper end of the skirt to openings 23 in the bosses. There is shown one conduit for each boss and it will be understood that the oil collected in the groove 15 by the piston in its reciprocation is led down through the conduits 22 to the interior of the piston pin boss to thereby lubricate the bearing.

The skirt 11 is formed with openings 24 in its side registering with the openings through the bosses 16 so that the piston pin may be inserted. (7) E³ F¹

It will be seen that in addition to providing a piston with a split skirt, guide portion the above described construction also provides an extremely a longitudinally rigid connection between the piston pin bosses and the skirt guide portion of the piston, which construction may be used either with or without the split skirt guide portion and separated flanges 17 between the ends of the piston pin bosses and the connections of those flanges with both the piston skirt guide portion and the head provide a particularly strong support for the bosses. (5) E⁴

In Figs. 5 and 6 the webs or walls 18 are slightly curved between the flanges 17 and the skirt wall guide portion to thereby distribute the connection of the bosses to the skirt guide portion more evenly around the skirt piston. Otherwise the showing is substantially the same as in the other figures. (4) E⁵

It will be understood further that my invention is not limited to the details of construction shown and other forms may be used without departing from the spirit or scope of the invention. (X)

4.

204661-4

12430

Having thus described my invention, what I claim and desire to secure by Letters Patent is:—

1. A piston comprising a head, a skirt separated at its periphery throughout its cir-

Per A

Per A

Per E

per A

" A

cumference from the head, and pin bosses connected to the head and to the skirt, said skirt being split longitudinally from its upper edge to its lower edge and at one side between its connections to said bosses.

2. A piston comprising a head, a skirt separated at its periphery throughout its circumference from the head, and pin bosses connected to the head and to the skirt, said skirt being split diagonally from its upper edge to its lower edge between its connections to said bosses.

Per E

1E. 3. A piston comprising a head, a skirt separated at its periphery from the head, and pin bosses connected to the head and to the upper and lower parts of the skirt, said skirt being split longitudinally at one side between its connections to said bosses.

Per A

Insert A¹

2E. 4. A piston comprising a head, a skirt separated at its periphery from the head, and pin bosses integrally connected to the head and to the upper and lower part of the skirt, (4) A¹

Per A

Insert A²

3E. 5. A piston comprising a head, a skirt separated at its periphery from the head, and pin bosses integrally connected to the head and to the skirt in four longitudinal lines, (4) A²

Per A

Insert H²

per H

4E. 6. A piston comprising a head, a skirt separated at its periphery from the head, and pin bosses connected to the head, and also connected to the skirt both above and below the bosses, (2) H²

" A

Insert A²

5E. 7. A An integrally cast piston comprising a head, a skirt separated at its periphery from the head, and pin bosses integrally connected to the head and to the skirt at both sides and in the zone of said bosses, (2) H A² (over)

1092870

Per A

8. A piston comprising a head, a skirt, piston pin bosses, and connections from the bosses to the head and skirt, substantially as described.

12431

Per H 6E. 8a. 9. A An integrally cast piston comprising a head, a skirt, separated piston pin bosses within the skirt, and an integral flange on each of said bosses intermediate its ends, said flange extending from both sides of the boss to the piston skirt and integrally united therewith in the zone of the boss, (2)

Insert H' H' 7E. 9a. 10. A piston comprising a head, a skirt, separated piston pin bosses integral with the head and disposed within the skirt, and integral means transversely flexible webs extending from the intermediate part of each of said bosses to the skirt wall in the zone of the boss for supporting the bosses from the adjacent part of the skirt.

Stabel 10a. 11. A piston comprising a head and skirt, said skirt having an annular groove, pin bosses within the piston, and means for conveying oil from said exterior groove to said bosses.

Per A 11a. 12. A piston comprising a head and skirt, said skirt having an annular exterior groove, pin bosses within the piston, spaced from the wall of the skirt and a conduit pipes leading from said groove to the interior of said bosses.

" A 8E. 10B. 12a. 12. A piston comprising a head, a skirt having its periphery separated from the head, pin bosses in the piston spaced from the wall of the skirt and conduits leading from the top of said skirt to the interior of said bosses.

Insert A' 9E. 11B. 13a. 13. A piston comprising a head, a skirt having its periphery separated from the head, pin bosses in the piston (2) Per A A' means integrally connecting the bosses with the head and skirt, and a conduit pipes leading from the upper part of the skirt to the bosses.

10E. 12B. 14a. 15. A piston comprising a head, a skirt, separated piston pin bosses within the skirt, and an intermediate flange on each of said bosses intermediate its ends, said flange extending laterally from both

sides of the boss to the piston skirt in a curve and integrally united with the skirt in the zone of the boss.

Insert C'

(X)

6.

204661-6

12432

In testimony whereof I affix my signature.

EDWARD J. GULICK.

OATH

COUNTY OF ELKHART,
STATE OF INDIANA, SS.

EDWARD J. GULICK, the above named petitioner, being sworn or affirmed, deposes and says that he is a citizen of the United States, and resident of Elkhart County, State of Indiana, that he verily believes himself to be the original, first, and sole inventor of the Improvement in HYDROCARBON MOTORS described and claimed in the annexed specification; that he does not know and does not believe that the same was ever known or used before his invention or discovery thereof, or patented or described in any printed publication in any country before his invention or discovery thereof, or more than two years prior to this application, or in public use or on sale in the United States for more than two years prior to this application; that said invention has not been patented in any country foreign to the United States on an application filed by him or his legal representatives or assigns more than twelve months prior to this application; and that no application for patent on said improvement has been filed by him or his representatives or assigns in any country foreign to the United States.

EDWARD J. GULICK.

Sworn to and subscribed before me this 23rd day of November, 1917.

WARD A. BERNET,

(Notarial Seal)

Notary Public.

My commission expires May 4, 1921.

204661-7

(Patent Office Apr 2 1918 Mailed)

2-260 Z/h

Div. 12 Room 322

Paper No. 2

Address only

"The Commissioner of Patents,
Washington, D. C.,"
and not any official by name.

All communications respecting this
application should give the serial number,
date of filing, title of invention, and
name of the applicant.

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Washington, April 2, 1918.

Milton Tibbetts,
C/o Packard Motor Car Company,
Detroit, Michigan.

Please find below a communication from the EXAM-
INER in charge of the application of E. J. Gulick, for
Hydrocarbon Motors, filed November 30, 1917, Serial
Number 204,661.

JAMES T. NEWTON,
Commissioner of Patents.

This case has been examined.

The title of invention should be changed to one more
suggestive of the actual improvement, such as "Pis-
tons," "Hydrocarbon Motor Pistons," etc.

Claims 1 and 2 are rejected on the patent to—

Spillman, et al, 1,092,870, April 14, 1914, (74-
85),

in view of it being old to split the skirt of a piston in
the manner such as shown by the patent to—

Schoengarth, 1,174,092, March 7, 1916, (74-85).

Claims 6 and 8 are rejected on the patent to Spill-
man, supra.

Claims 11 and 12 are rejected on the patent to Spill-
man, supra, in view of the oil conduits shown by—

Nichols, 953,389, March 29, 1910, (74-85).

Claims 3, 4, 5, 7, 9, 10, 13, 14, and 15, are allowable as at present advised.

L

C. A. SAUL,

B.V.Z.

Exr. Div. 12.

204661-8

(Patent Office Sep 16 1918 Mailed)

2-260

Div. 12 Room 322

Paper No. 3

Address only

"The Commissioner of Patents,
Washington, D. C.,"
and not any official by name.

MWY

All communications respecting this application should give the serial number, date of filing, title of invention, and name of the applicant.

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Washington, Sept. 16, 1918.

Milton Tibbetts,
c/o Packard Motor Car Co.,
Detroit, Mich.

Please find below a communication from the EXAM-
INER in charge of the application of Edward J. Gulick,
Ser. No. 204,661, filed Nov. 30, 1917; Hydrocarbon Mo-
tors.

JAMES T. NEWTON,

Commissioner of Patents.

Supplementary to the Office action of April 2, 1918.

Claims 4 and 7 are believed to be too broad in view of newly discovered references.

These claims are rejected on the patent to

Haas 1,229,258 June 12, 1917 (121-104) in view of
British to Birmingham Small Arms Co., 21,435 Sept.
15, 1910 1 sheet 74-85 There would be no novelty in

duplicating the pin boss webs "17" of Haas so as to connect with the lower part of the skirt in view of the webs shown by Birmingham et al.

Claims 4 and 5 are further rejected on British patent to

Thomas 1411 June 13, 1914 1 sheet.

Claims 13 and 14 are rejected on Haas supra in view of Nichols of record. There would be no invention in making an oil conduit as shown by Nichols for the skirt of the Haas piston leading to the boss bearing.

A. B. REAVIS,

Actg Examiner, 12.

B.V.Z.

204661—9

12433

(Mail Room Jul 26 1919 U. S. Patent Office)

Division 12, Paper No. 4

A Jul 28 1919

U. S. Patent Office

IN THE UNITED STATES PATENT OFFICE

Edward J. Gulick,
Hydrocarbon Motors,
Filed November 30, 1917.

Room 322
Div. 12
Serial No. 204,661

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

This application is amended as follows:

A In the preamble of the specification change the title of the invention from "Hydrocarbon Motors" to —*Hydrocarbon Motor Pistons*—.

Claim 1, line 2, after "periphery" insert —*throughout its circumference*—; line 3, after "longitudinally" insert —*from its upper edge to its lower edge and*—.

Claim 2, line 2, after "periphery" insert —*throughout its circumference*—; line 3, after "diagonally" insert —*from its upper edge to its lower edge*—.

Claim 4, line 2, after "bosses" insert —*integrally*—; line 3, after "skirt" change the period to a comma and insert —*the outer ends of the pin bosses being*

A¹ spaced from the opposing parts of the skirt
Insert H² wall and said skirt having openings opposite
 the open ends of the bosses—, (2) **H²**

Claim 5, line 2, after "bosses" insert
 —*integrally*—; line 3, after "lines" change
A² the period to a comma and insert —*the ends*
 of said bosses being spaced from the opposing
 parts of the wall of the skirt, said skirt hav-

204661—10

12434

ing openings therethrough opposite the open ends of
 the bosses—.

Claim 6, line 3, after "head" insert a comma and
 after "and" insert —*also connected*—; same line, after
 "skirt" insert —*both*—.

Claim 7, line 2, after "bosses" insert —*integrally*—;
 line 4, after "bosses" change the period to a
A³ comma and insert —*the bosses having their*
Insert H³ ends spaced from the opposing parts of the
 skirt wall—, (2) **H³**

Cancel claim 8.

Change the numbers of claims 9 and 10 to 8 and 9
 respectively.

Change the number of claim 11 to 10 and in line 3,
 thereof before "groove" insert —*exterior*—.

Change the numeral of claim 12 to 11 and in line
 2 thereof before "groove" insert —*exterior*—, and after
 "piston" cancel the comma and insert —*spaced from*
the wall of the skirt—; line 3, cancel "a conduit" and
 insert —*pipes*—.

Change the numeral of claim 13 to 12 and in line
 2 thereof after "piston" cancel the comma and insert
 —*spaced from the wall of the skirt*—.

Change the numeral of claim 14 to 13 and in line
 2 thereof after "piston" cancel the comma and insert
 —*the ends of said bosses being spaced from the*
A⁴ walls of the skirt—; line 3, after "means" in-
 sert —*integrally*—; lines 3-4, cancel "a con-
 duct" and insert —*pipes*—.

Change the number of claim 15 to 14.

REMARKS

The splitting of the skirt cooperates with the peripheral separation of the skirt from the head to perform a unitary function, namely that of permitting sufficient

2.

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12435

contraction and expansion of the skirt without seizing. In the Schoengarth patent there is no separated skirt, and hence there can be no definite relation between such a skirt and a split or weakened formation therein. In applicant's case the split runs entirely through the skirt, and hence there is a capacity for continuous yielding throughout the entire length of the same. There is clearly a true combination between the split and the other form of division consisting of the peripheral separation of the skirt from the head, and hence the subject matter of claims 1 and 2 as now amended is not met by Spillman and Schoengarth taken together.

In regard to the subject matter of claims 4, 5 and 7, the Haas patent does not show the pin bosses integrally connected to the head and to the skirt. In all the forms shown by Haas the head, or part of the head, is separate from the skirt and connected thereto by screws or bolts. Nor does Haas show the bosses spaced at their ends from the wall of the skirt.

The British patent to Birmingham does not show the spaced piston bosses.

The British patent to Thomas does not show the pin bosses integrally connected to the head and does not have the openings in the skirt opposite the open ends of the bosses.

In respect to the subject matter of original claims 11 to 14 inclusive, Spillman does not have the exterior groove for receiving the oil, but an inwardly inclined edge 14 which serves to deflect the oil back into the piston and does not serve to collect the same so that it may be led from the groove through conduits down into the bosses, nor does Nichols show the pipes provided in the

3.

204661—12

12436

body of the piston, but, on the contrary, merely has channels cut through the ordinary piston wall.

Nor does the Haas patent disclose anything more pertinent to this oiling arrangement than the Spillman patent, even when taken in connection with Niehols.

Respectfully submitted,

EDWARD J. GULICK.

By MILTON TIBBETTS,

His Attorney.

Detroit, Michigan,
July 24, 1919,
HPD:MH

4.

204661-13

(Patent Office Nov 15 1919 Mailed)

2-260

Div. 12 Room 322

Paper No. 5

Address only

"The Commissioner of Patents,
Washington, D. C.,"
and not any official by name.

All communications respecting this application should give the serial number, date of filing, title of invention, and name of the applicant.

Z/D

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Washington, November 15, 1919.

Milton Tibbetts,
c/o Packard Motor Car Co.,
Detroit, Michigan.

Please find below a communication from the Examiner in charge of the application of Edward J. Gulick, Filed Nov. 30, 1917, Serial No. 204,661, Hydrocarbon Motor Pistons.

JAMES T. NEWTON,

Commissioner of Patents.

Responsive to the amendment of July 26, 1919.

Claims 1 and 2 are rejected upon either the patent to Spillman, of record or the French patent to

Chenard, 468,595, (1 sheet) (74-108)

especially in view of either the patent to Schoengarth, of record or the French to

Panhard, 480,650, (1 sheet) (74-108A).

Claims 3, 4 and 7 are rejected upon the patent to Spillman, supra, in view of the British patent to

Ricardo, 17,953, Dec. 23, 19165 (74-108).

Claim 6 is rejected upon the patent to Ricardo, supra.

Claims 10 and 11 are rejected upon the patent to Stabel, 753,527, Mar. 1, 1904 (74-108L).

Claims 5, 8, 9, 12, 13 and 14 are allowable.

P. P. PIERCE,

B.V.Z.

Examiner.

204661-14

(Mail Room Sep 24 1920 U. S. Patent Office)

Division 12, Paper No. 6

Sep 25 1920

U. S. Patent Office

IN THE UNITED STATES PATENT OFFICE

Edward J. Gulick,
Hydrocarbon Motors,
Filed November 30, 1917.

Room 332
Div. 12
Serial No. 204,661

Hon: Commissioner of Patents,
Washington, D. C.

Sir:

In response to the Office Action of November 15, 1919, please amend the above entitled application as follows:

B

Cancel claims 10 and 11 and renumber the remaining claims.

REMARKS

Reconsideration is respectfully requested for claims 1 to 3 inclusive since the references cited by the Examiner do not disclose the inventions set forth. In each of these claims is defined a piston, comprising a head, a skirt separated at its periphery throughout its circumference from the head, and pin bosses connected to the head and to the skirt, said skirt being split longitudinally at one side between its connections to said bosses.

In addition to this description claims 1 and 2 specify that the skirt is split diagonally from its upper edge to its lower edge. Claims 1 and 2 are rejected on Spillman or the French patent to Chenard in view of Schoengarth or the French patent to Panhard. The Spillman patent discloses merely a piston having its head and skirt separated at the periphery of the head and bosses connected

—1—

204661—15

to the head and to the skirt, and this is also true of the French patent to Chenard.

The patent to Schoengarth discloses a piston having a head and skirt connected together at the periphery of the skirt, or in other words, formed in one piece, and this patent also has a pair of slots, 3 and 4, the slot 3 being cut into the skirt of the piston from the side toward the longitudinal center, and the slot 4 being cut diagonally from the junction of the slot 3 with one of the walls to the lower end of the skirt. From the specification of Schoengarth we learn that these slots were formed merely for the purpose of providing an adjustment whereby the circumference of the skirt could be varied and this adjustment is secured by means of the screws or studs, 5 and 5'. It is evident, therefore, that the diagonal slot 4 could not function in the manner of applicants diagonal slot 21, and that the patentee had no such object in mind in providing the slot 4.

The French patent to Panhard shows a piston construction in which there appears to be provided a longitudinal slot reaching from one end of the piston to the other, but it is not understood how this piston could operate in the manner illustrated, since the slot would apparently permit a leakage of gas past the piston. In the Panhard patent, there is not disclosed a piston made up of a head and a skirt separated from the head.

From the above outline of the patents cited against these claims, it is evident that no one of the patents dis-

closes the combination claimed, and it is also evident that the object of the invention could not be attained without the use of all the elements of the combination, namely

—2—

204661—16

the head, the skirt separated from the head at its periphery, the bosses connected to the head and to the skirt, and the slot extending throughout the length of the skirt. For these reasons it is respectfully submitted that all the elements combine to form a true combination, and that none of the patentees had in mind the accomplishment of the object for which applicant's device was designed. It is believed, therefore, that claims 1, 2 and 3 inclusive are allowable.

It is noted that the Examiner rejected claim 3 on the Spillman patent taken with the British patent to Ricardo, but this rejection appears to have been inadvertent, or based upon a misunderstanding of the scope of the claim, since neither Spillman nor Ricardo discloses the piston having the skirt split longitudinally. For this reason it has been assumed that claim 3 should have been grouped with claims 1 and 2, and therefore this claim was discussed in connection with the preceding claims.

In connection with the citation of the British patent to Ricardo, attention is called to the fact that the pin bosses are not connected to the head and to the skirt as in applicant's construction, and as set forth in the claim, but in Ricardo the pin bosses are connected to a downwardly extending portion "B" formed integrally with the head "A" and the skirt "E" is bolted to this same portion "B."

Reconsideration is respectfully requested for claims 4 and 7, rejected on Spillman and on Ricardo, and since claim 4 calls for pin bosses integrally connected to the head and to the upper and lower part of the skirt and

—3—

204661—17

claim 6 calls for the pin bosses connected to the head and also connected to the skirt both above and below the bosses. As above pointed out the bosses "F" in Ricardo are not connected to the skirt, and in the Spillman patent the bosses are not connected to the upper and lower portions of the skirt, and are not connected to the skirt both above and below the bosses. For these reasons it is believed that claims 4 and 6 are allowable.

Claim 7 distinguishes from the patents to Spillman and Ricardo, for the reasons pointed out in connection with claim 4.

Former claims 10 and 11 have been cancelled since the subject matter of these claims appeared to be sufficiently covered in the claims which were retained.

The above amendment is believed to be fully responsive to the last Office Action, and a favorable Action is respectfully requested.

Respectfully submitted,

EDWARD J. GULICK,

By MILTON TIBBETTS,

His Attorney.

Detroit, Michigan

Sept. 21, 1919,

LWH-KB

—4—

204661—18

(Patent Office Nov 19 1920 Mailed)

2—260

Div. 12 Room 322

Paper No. 7

Address only

"The Commissioner of Patents,
Washington, D. C.,
and not any official by name.

All communications respecting this application should give the serial number, date of filing, title of invention, and name of the applicant.

Ch-D

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Washington, Nov. 19, 1920.

Milton Tibbetts,
c/o Packard Motor Car Co.,
Detroit, Mich.

Please find below a communication from the Examiner in charge of the application of Edward J. Gulick, Filed Nov. 30, 1917, Serial No. 204,661, Hydrocarbon Motor Pistons.

R. F. WHITEHEAD,

Commissioner of Patents.

Responsive to the amendment of Sept. 24, 1920.

Claims 1 to 3 inclusive are again rejected on Spillman et al, of record, in view of

Spillman, 1,325,176, Dec. 16, 1919 (74-108-A).

It is common in the art to split the skirt of a piston longitudinally for the purpose of allowing the same to expand against the walls of the cylinder by the application of heat.

Claims 4, 6 and 7 are rejected as being met in terms by

Ricardo, 1,294,833, Feb. 18, 1919 (74-108).

The remaining claims are allowable.

P. P. PIERCE,

V.I.C.

Ex.

204661—19

12437

(Mail Room Oct 29 1921 U. S. Patent Office)

Division 12, Paper No. 8

Oct 31 1921

U. S. Patent Office

IN THE UNITED STATES PATENT OFFICE

3 yrs

ent Cl.

Edward J. Gulick

Room No. 322

Hydrocarbon Motor Pistons

Division No. 12

Filed November 30, 1917

Serial No. 204,661

not ent

Hon. Commissioner of Patents,
Washington, D. C.

C

Sir:—

This application is amended as follows:

In the preamble please change the title from
"Hydrocarbon Motor Pistons" to —Pistons—.

Page 2, line 4, change "is not adapted to" to —will
not—.

Add the following claims:

—13. A piston comprising integral head and skirt
portions, said piston being formed with a transverse slit

near its upper end and with a longitudinally
 Per D diagonally extending slit running from the
 transverse slit to the free end of the piston skirt,
 adjacent parts of the skirt across said longitudinal
 Per D diagonal slit being entirely disconnected
 to permit free expansion and contraction of the
 skirt parts.

merely integral as Spillman

Per E

14. A piston comprising integral head and skirt
 portions, said piston being formed with a transverse slit

Per D extending entirely around the piston near its
 upper end and with a diagonally longitudinally
 extending slit running from the transverse slit
 to the free end of the piston skirt, adjacent parts
 of the skirt across said longitudinal diagonal
 slit being entirely disconnected to permit free
 expansion and contraction of the skirt parts.

15. A piston comprising integral head and skirt
 portions, said piston being formed with a transverse
 slit near its upper end and with a diagonally

Per D longitudinally extending slit running from the

204661—20

12438

transverse slit to the free end of the piston skirt, adjacent
 parts of the skirt across said diagonal

Per D longitudinal slit being entirely disconnected to
 permit free expansion and contraction of the
 skirt parts, and piston pin bosses formed as an integral
 part of the piston.

16. A piston comprising a head having a
 ring adapted to contact with the cylinder wall,
 Per D a skirt having a longitudinally diagonally ex-
 tending slit permitting it free expansion and
 contraction, and means integral with the head and the
 skirt connecting the head with the skirt and arranged
 to be out of contact with the cylinder wall in the opera-
 tion of the piston.

Per E

17. A piston comprising a head having a
 ring adapted to contact with the cylinder wall,

Per D a skirt having a longitudinally diagonally ex-
 tending slit permitting it free expansion and
 contraction, and means integral with the head and the
 skirt connecting the head with the skirt and arranged
 to be out of contact with the cylinder wall in the opera-

tion of the piston, and piston pin bosses formed in said connecting means.

Per D 18. A piston comprising a head having a ring adapted to contact with the cylinder wall, a skirt having a ~~longitudinally~~ ~~diagonally~~ extending slit permitting it free expansion and contraction, and means integral with the head and the skirt connecting the head with the skirt and arranged to be out of contact with the cylinder wall in the operation of the piston, and piston pin bosses formed in said connecting means, the outer ends of said bosses being slightly inside the normal diameter of the piston skirt.

C 11E 19. A piston comprising a head portion, a skirt portion, two separated pin bosses, connecting flanges in the zone of the bosses and extending from the bosses to the skirt on both sides of the

204661—21

2.

12439

bosses, connecting means from each of the bosses to the head portion, the skirt portion being entirely separated from the head portion except through the boss connections, and the skirt portion being ~~slit~~ ~~split~~ longitudinally of the piston to permit free expansion and contraction.

C contd 12E. 20. A piston comprising a head portion, a skirt portion, two separated pin bosses, connecting flanges in the zone of the bosses and extending from the bosses to the skirt on both sides of the bosses, connecting means from each of the bosses to the head portion, the skirt portion being entirely separated from the head portion except through the boss connections, and the skirt portion being ~~slit~~ ~~split~~ longitudinally of the piston to permit free expansion and contraction and the skirt portion being cut away adjacent the outer ends of the piston bosses.

Per E 13E. 21. A piston having a head portion with a ring groove therein, a skirt portion having its cylinder-contact engaging part separated from the head portion, separated pin bosses having integral flanges connecting them with the skirt on both sides of the bosses and with the head portion respectively, said skirt being ~~slit~~ ~~split~~ from top to bottom on one side only of the pin bosses to permit free expansion and contraction of the skirt portion.

Insert E^s Cls 14-29

D^s

REMARKS.

Reconsideration of this application in its present form is respectfully requested.

Claims 1, 2 and 3 are rejected on Spillman 1,092,870 in view of Spillman 1,325,176. Attention is called to the fact that the application for the later Spillman patent was filed February 12, 1919 whereas applicant's case

3.

204661—22

12440

was filed November 30, 1917. Under these circumstances the later Spillman patent is, of course, no reference and must be withdrawn and since these claims are admittedly not met in the earlier Spillman patent alone these claims should be allowed.

Claims 4, 6 and 7 are rejected on Ricardo 1,294,833 the application for which was filed April 23, 1918. Applicant's case was filed November 30, 1917 so that Ricardo is no reference against him. It is requested that this Ricardo patent also be withdrawn as a reference.

Several new claims have been inserted which clearly differentiate from all of the valid references cited and allowance of these claims is also requested.

Respectfully submitted,

EDWARD J. GULICK,

By MILTON TIBRETT,

His Attorney.

Detroit, Mich.
October 26, 1921
MT:TS

4.

204661—23

(Mail Room Dec 23 1921 U. S. Patent Office)

A & Affidavit
Division 12, Paper No. 9
Dec 24 1921
U. S. Patent Office

IN THE UNITED STATES PATENT OFFICE

Edward J. Gulick
Pistons
Filed November 30, 1917

Room No. 322
Division No. 12
Serial No. 204,661.

Hon. Commissioner of Patents,
Washington, D. C.

D

Sir:—

In addition to the amendment filed October 29, 1921, this application is hereby further amended as follows:

Claims 13, 15, 16, 17 and 18, line 3, and claim 14, line 4, change "diagonally" to —*longitudinally*—.

Claims 13, 14 and 15, line 6, change "diagonal" to —*longitudinal*—.

Add the following claims:

do 1 —22. A piston comprising integral head and skirt portions, the head portion having a piston ring part, said piston being slit through its side wall transversely and longitudinally, the transverse slit being immediately below said ring part, and the longitudinal slit extending from the transverse slit to the lower end of the skirt to allow for expansion of the skirt portion.

D
Per E
do 1 23. A piston comprising integral head and skirt portions, the head portion having a piston ring part, said piston being slit through its side wall transversely and longitudinally, the transverse slit being immediately below said ring part and extending entirely around the piston, and the longitudinal slit extending from the transverse slit to the lower end of the skirt to allow for expansion of the skirt portion.

do 1 24. A piston comprising integral head and skirt portions, the head portion having a piston

204661—24

ring part, said piston being slit through its side wall transversely and longitudinally, the transverse slit being immediately below said ring part, and the longitudinal slit extending from the transverse slit to the lower end of the skirt to allow for expansion of the skirt portion, adjacent parts of the skirt across the longitudinal slit being entirely disconnected to permit free expansion and contraction of the skirt portion.—

REMARKS

A patent relating to this art which has not been cited up to this time is the patent to Franquist, No. 1,153,902, dated September 21, 1915, and claim 22, here-

inabove, is designed to distinguish from the Franquist construction by reason of the transverse slit being arranged below the piston ring part of the piston. It will be noticed that in Franquist, particularly in Figs. 1 and 2, that the slit 17 which extends part way around the piston is at the base of the lower piston ring slot or groove. This would cause the piston skirt to expand upwardly and tend to close the ring groove and thus interfere considerably with the operation of that particular piston ring. In applicant's construction the transverse slit is entirely below the ring portion of the piston and that feature is brought out in claim 22. Since applicant is the first to use the transverse and longitudinal slits in which the transverse slit is below the piston rings, he should be entitled to this claim.

Claim 23 is similar to claim 22 except that it is limited by calling for the transverse slit extending entirely around the piston. Claim 22 would cover pistons slotted only partly around their circumference.

—2—

204661—25

In order to anticipate the Examiner's rejection of claim 22 on the patent to Schoengarth, cited, we are filing herewith an affidavit of the applicant carrying his date of invention back of the filing date of Schoengarth. Applicant made this invention and made some of these pistons and successfully used them before Schoengarth filed, so that Schoengarth is no longer a reference.

Claim 24 is similar to claim 22 except that the adjacent parts of the skirt across the longitudinal slit are referred to as being entirely disconnected, which is not true of Schoengarth. This claim, therefore, is allowable regardless of the patent to Schoengarth as a reference.

Respectfully submitted,

EDWARD J. GULICK,

By MILTON TIBBETTS,

His Attorney.

Detroit, Michigan
November 29, 1921
MT:TS

—3—

204661—26

(Mail Room Dec 23 1921 U. S. Patent Office)
IN THE UNITED STATES PATENT OFFICE

Edward J. Gulick
Pistons
Filed November 30, 1917

Room No. 322
Division No. 12
Serial No. 204,661

AFFIDAVIT

COUNTY OF ELKHART
STATE OF INDIANA

ss.

Edward J. Gulick of Elkhart, Indiana, being duly sworn, deposes and says that he is the applicant in the matter of the above entitled application, and that the following claim is a part of said application:

22. A piston comprising integral head and skirt portions, the head portion having a piston ring part, said piston being slit through its side wall transversely and longitudinally, the transverse slit being immediately below said ring part, and the longitudinal slit extending from the transverse slit to the lower end of the skirt to allow for expansion of the skirt portion.

that he invented the piston set forth in the above claim prior to the month of October 1915; that he made or had made under his direction drawings of said piston and described the same to others in this country prior to the month of October 1915; that a blue print of one of such drawings has been preserved and is now in the possession of the assignee of this application, the Packard Motor Car Company of Detroit, Michigan; that a photoprint of such blue print is attached hereto; that the longhand notes on said blue print which show in the photoprint were made by him on the blue print prior to the month of October 1915; that said invention was incorporated in an automobile engine and successfully operated in the

204661—27

United States prior to the month of October 1915; that he does not know and does not believe that said invention has been in public use or on sale in this country or patented or described in a printed publication in this or any foreign country for more than two years prior to his application, and that he has never abandoned the said invention.

EDWARD J. GULICK.

1860

Defendants' Exhibit 4-L, File Wrapper

Subscribed and sworn to before me this 2nd day of
December, 1921.

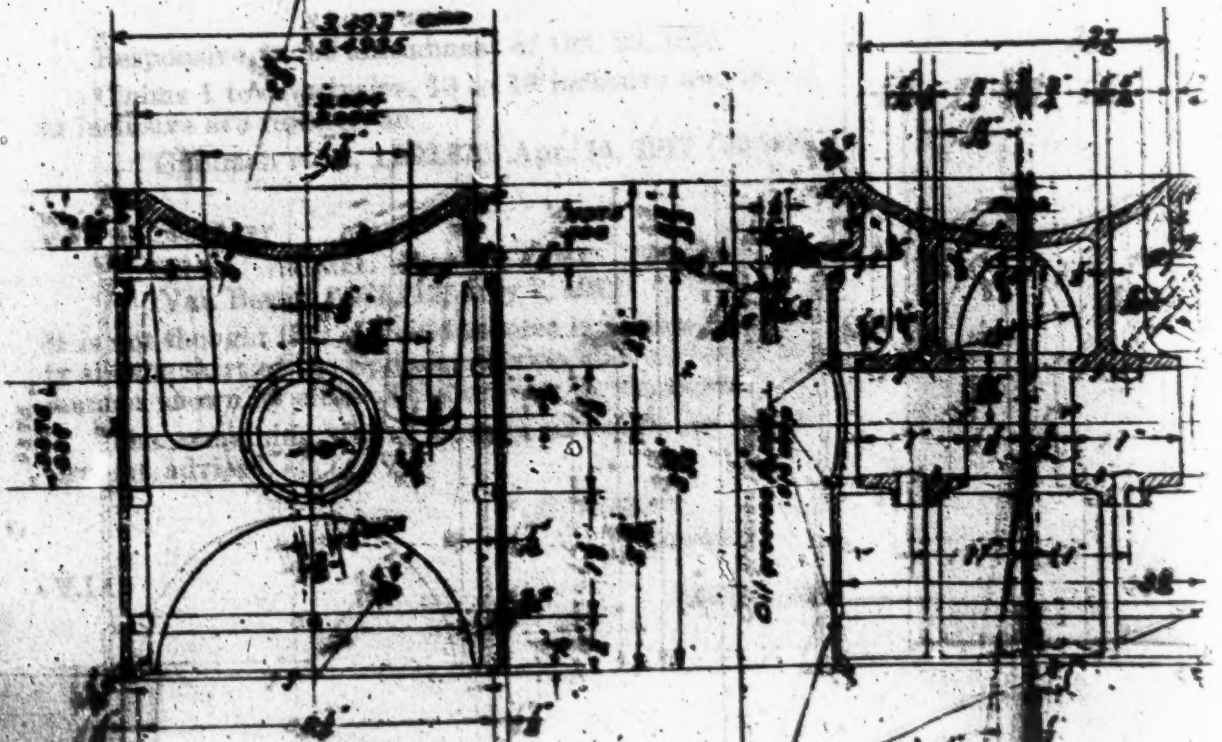
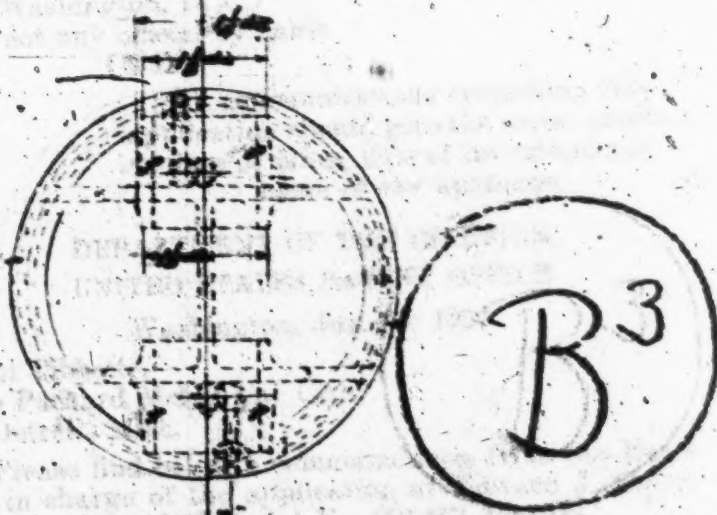
(Notarial Seal) JOHN M. EAGLE,
Notary Public.

My commission expires Mar. 7, 1922.

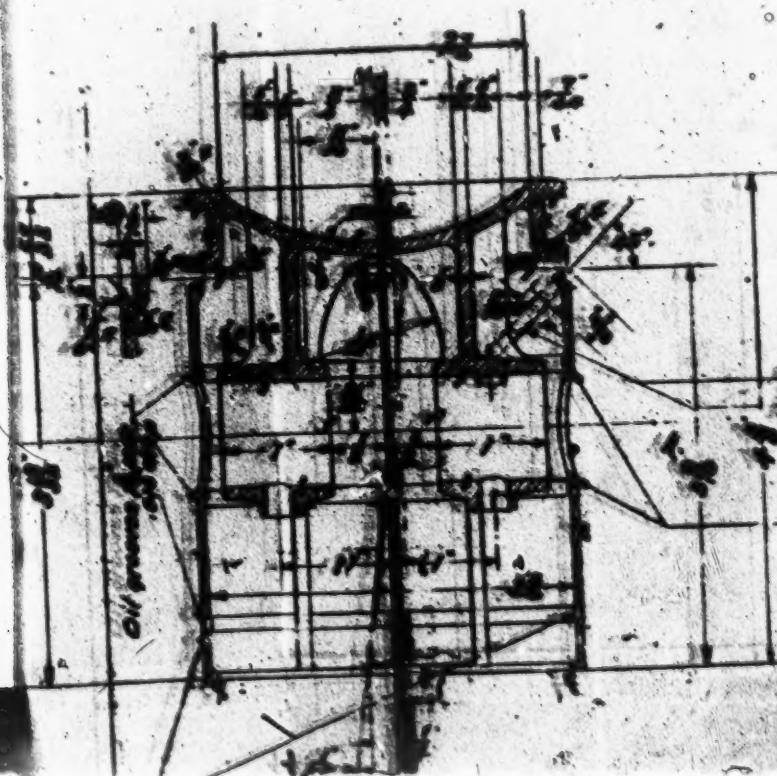
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204661—28

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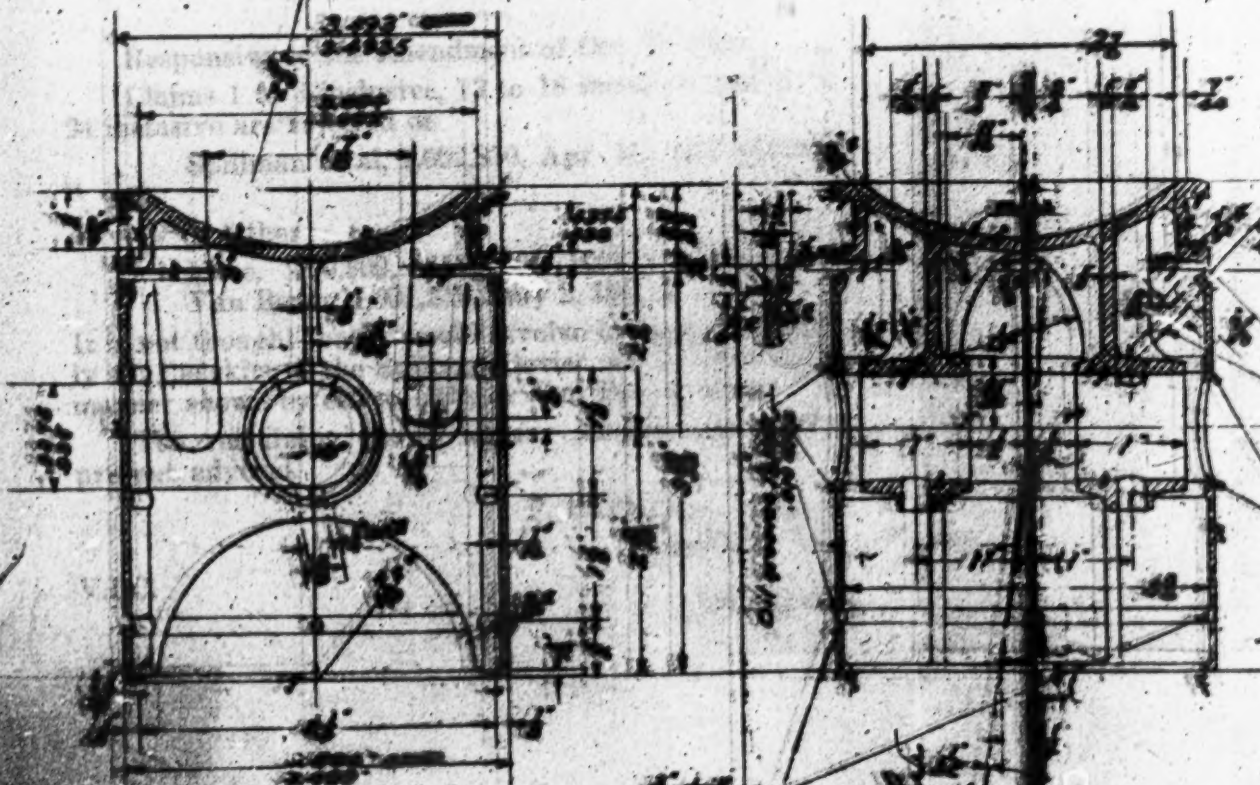
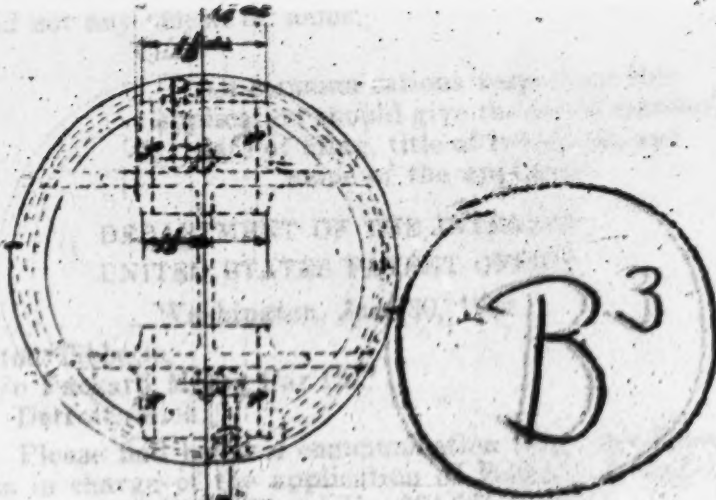


[Faint, illegible handwritten notes]

One Week Trip

The Parish in which
the Civil is split to
bring for Explan and
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yourself and I feel
of such kind carry the
your friends

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CAST IRON

204661

20

All communications regarding an application should give the date, the date of filing, the name of the applicant, and the name of the applicant.

Washington, Jan. 29, 1918

1992

• Peabody Water Co. Co.

General: 1144

Please find below a communication from the Director in charge of the application of Executive Order 9835, Nov. 5, 1947, Serial No. 246 in Boston:

1911-12 1912-13

1. General - Review of the past year

Response to the

Ben Ward Toph

...are rejected on *Positive ver. to back*

The Court is split and

[illegible]

from the ^{rest} which carry the

[Faint handwritten signature]

Peter Schindler

League of Nations

Edwin Thompson

[Faint handwritten notes at the bottom of the page]

...

ETG MOTOR

Chief Engineer J. F. WISHAWKA, IND
as above DIST. 3N

6 R20b

...FULL SIZE 6-24-14
...than a ring BE.P

— 19 —

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204661

30

(Patent Office Jan 30 1922 Mailed)

2-260

Div. 12 Room 322

Paper No. 10

Address only

"The Commissioner of Patents,
Washington, D. C.,"
and not any official by name.

Ch-D

All communications respecting this
application should give the serial number,
date of filing, title of invention, and
name of the applicant.

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Washington, Jan. 30, 1922.

Milton Tibbetts,
c/o Packard Motor Car Co.,
Detroit, Mich.

Please find below a communication from the EXAM-
INER in charge of the application of Edward J. Gulick,
Filed Nov. 30, 1917, Serial No. 204,661 PISTONS.

THOMAS E. ROBERTSON,
Commissioner of Patents.

Responsive to the amendment of Oct. 29, 1921.

Claims 1 to 3 inclusive, 13 to 18 inclusive and 20 to
24 inclusive are rejected on

Spillman et al, 1,092,870, Apr. 14, 1917 (74-108-
2),

in view of either

Ebbs, 700,309, May 20, 1902 (74-108-A) or
Van Bever, 1,031,212, July 2, 1912

It is not thought that it would involve invention to mere-
ly slit the skirt of the Spillman device, above cited in the
manner shown by either Ebbs or Van Bever, supra.

The remaining claims appear allowable as at the
present, advised.

P. P. PIERCE,
Examiner.

V.I.C.

204661-81

12441

(Mail Room U. S. Patent Office Sep 11 1922)

Division 12, Paper 11

IN THE UNITED STATES PATENT OFFICE

Application of
Edward J. Gulick,
Pistons,
Ser. No. 204,661,
Filed November 30, 1917.

Sep 12 1922
U. S. Patent Office
Div.-12,
Rm.-322.
Amendment E

Letter & print to C.
Amendment E

The Commissioner of Patents,
Washington, D. C.

Sir:—

In response to the Office Action of January 30th, 1922, applicant amends as follows:

On page 2 of the specification, line 7, after "skirt" insert —or guide portion—.

Same page, lines 12 and 13, strike out "lubricating conduits leading from the exterior of the piston to" and insert —improved lubricating means for—.

On page 3, line 4, after "head" insert —portion—.

Same page, line 5, after "skirt" insert —or guide portion—.

Same page, line 9, after "skirt" insert —portion—, and after "with" insert —a recess shown in the form of—.

Same page, line 17, cancel "skirt" and insert —guide portion—.

Same page, line 18, after "webs" insert —or walls—.

Same page, line 20, after "skirt" insert —or guide portion—.

Same page, line 23, after "webs" insert —or walls—.

On page 4, line 1, strike out "it" and insert in lieu thereof —the cylinder-engaging part of the guide at one side of the pin bosses which takes the angular thrust of the connecting rod during one stroke of the piston—.

E¹

Same page, line 2, after "cylinder" insert —and it effects a complete severing of the guide wall so that the separated edges of the split are

E²

unrestrained for movement toward and from each other—.

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Ser. No. 204,661.

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Same page, line 4, before "in" insert *—shown—*, and before "groove" insert *—recess or—*.

Same page, line 12, after the period, insert *—As these openings are well above the bottom of the guide portion of the piston the lower end of the*
E³ *piston skirt is left unbroken, except for the split 21—*.

Same page, line 14, cancel "skirt" and insert *—guide portion—*.

Same page, line 15, cancel "an extremely" and insert *—a longitudinally—*.

Same page, line 16 and line 17, cancel "skirt" and insert *—guide portion—*.

Same page, line 20, after "with" insert *—both—*, and cancel "skirt" and insert in lieu thereof *—guide portion and the head—*.

Same page, line 21, cancel "support for the bosses" and insert *—construction, and at the same time, when the longitudinal split is used, as shown, the web*
E⁴ *structure has sufficient lateral flexibility to permit the split to close more or less under the action of the expansion forces incident to the heating of the piston—*.

Same page, line 22, after "webs" insert *—or walls—*.

Same page, line 23, cancel "skirt wall" and insert *—guide portion—*.

Same page, line 24, cancel "skirt" and insert *—guide portion—*.

Same page, line 25, cancel "skirt" and insert *—piston—*.

Same page, after line 26, insert the following:

—while my piston is, of course, adapted for use in either vertical, inclined, or horizontal engines, for convenience I refer in some instances to its head end and its open end as the upper and lower ends or parts, respectively—.

Cancel Claims 1 and 2.

Re number Claim 3 as 1 and in line 3 change "part" to *—parts—*.

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Renumber Claims 4 to 12, inclusive, as 3 to 10, inclusive.

Cancel Claims 13 to 18, inclusive.

Renumber Claim 19 as 11, and in line 8 thereof, change "slit" to ~~split~~.

Renumber Claim 20 as 12, and in line 8 thereof, change "slit" to ~~split~~.

Renumber Claim 21 as 13, and in line 2, change "cylinder contact" to ~~cylinder-engaging~~.

Same claim, line 6, change "slit" to ~~split~~.

Cancel Claims 22, 23 and 24.

Insert the following claims:

—14. A piston for internal combustion engines comprising in combination a head portion having an end wall and a ring-packed side wall, a guide portion having (1) ~~H~~^E diametrically opposite cylinder-engaging parts thereof designed to take the angular thrust of a connecting rod and each separated at its upper end from the said side wall of the head portion by an unobstructed air gap, ~~Per F~~^E a pair of separated pin bosses disposed on an axis between said cylinder-engaging parts, a pair of longitudinally disposed walls connected to said bosses and each joined at relatively widely separated points to the said cylinder-engaging parts above and below the plane of the boss axis, said walls being disposed within the maximum diameter of the ~~Per H~~^E piston, and integral, rigid connections extending from the bosses to the head portion.

15. A piston for internal combustion engines comprising in combination a head portion having an end wall and a side wall, a guide portion having on one side a cylinder-engaging part disposed to take the angular thrust of a connecting rod during one stroke of the piston, said cylinder-engaging part being separated at its upper end from said side wall by an air gap and being split longitudinally to accommodate expansion incident to the heating of the piston, a pair of separated pin bosses, and walls integrally uniting said bosses, the guide portion and the head portion.

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16. A piston for internal combustion engines comprising in combination a head portion having an end wall and a side wall, a guide portion having diametrically opposite cylinder-engaging parts thereof designed to take the angular thrust of a connecting rod and each separated at its upper end from the said side wall by an air gap and one of said cylinder-engaging parts being split longitudinally from its upper edge to its lower edge, a pair of separated pin bosses disposed on an axis between said cylinder-engaging parts, and walls integrally uniting said bosses, the guide portion and the head portion, (2)

Per I **E^c contd** **H^c**
 17. A piston for internal combustion engines comprising in combination a head portion having an end wall and a side wall, a guide portion having diametrically opposite cylinder-engaging parts thereof designed to take the angular thrust of a connecting rod and arcuate cylinder-engaging parts constituting unbroken continuations of joining said diametrically opposite parts at the lower end of the guide, the said diametrically opposite parts each being separated at its upper end from the side wall of the head section by an air gap, a pair of separated pin bosses disposed on an axis between said cylinder-engaging parts, a pair of transversely flexible walls integrally joined to the cylinder-engaging parts at points above and below the plane of the boss axis, said walls being disposed within the maximum diameter of the piston, and connections extending from the bosses to the head portion and integral therewith. (Cl 18)

18. A piston for internal combustion engines comprising in combination a head portion having an end wall and a side wall, a guide portion having diametrically opposite cylinder-engaging parts and arcuate cylinder-engaging parts constituting unbroken continuations of joining said diametrically opposite parts at the lower end of the guide, the said diametrically opposite parts each being separated at its upper end from the side wall of the head

section by an air gap and one of said parts being split longitudinally from its upper edge to its lower edge, a pair of separated pin bosses disposed on an axis between said cylinder-engaging parts, a pair of walls connected to said bosses and joined to the cylinder-engaging parts at points above and below

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the plane of the boss axis, said walls being disposed within the maximum diameter of the piston, and connections extending from the bosses to the head portion.

19. A piston for internal combustion engines comprising in combination a head portion having an end wall and a side wall, a guide portion having diametrically opposite cylinder-engaging parts thereof designed each separated at its upper end from the said side wall by an air gap, a pair of separated pin bosses disposed on an axis between said cylinder-engaging parts, a pair of walls connected to said bosses and joined to the said cylinder-engaging parts at points above and below the plane of the boss axis, and rigid, integral connections between the bosses and the head end portions comprising upward extensions of said walls with strengthening ribs disposed substantially at right angles thereto.

20. A piston for internal combustion engines comprising in combination a head portion having an end wall and a side wall, a guide portion having diametrically opposite cylinder-engaging parts thereof designed to take the angular thrust of a connecting rod and each separated at its upper end from the said side wall by an air gap (2) H' and one of said cylinder-engaging parts being split longitudinally from its upper edge to its lower edge between said supporting connections, pair of separated pin bosses disposed on an axis between said cylinder-engaging parts, a pair of walls disposed within the maximum diameter of the piston and integrally connected to said bosses and to said cylinder-engaging parts and to said head portion.

21. A piston for internal combustion engines comprising in combination a head portion having an end wall and a side wall, a guide portion having diamet-

rically opposite cylinder-engaging parts thereof
Per I designed to take the angular thrust of a connecting rod and each separated at its upper end from the said wall by an air gap and one of said cylinder-engaging parts being split longitudinally from its

upper edge to its lower edge, a pair of separated
Per F pin bosses disposed on an axis between said cylinder-engaging parts, and walls integrally uniting said bosses, the guide portion and the head portion, the guide structure and said walls being adapted to permit the split of the cylinder-engaging part to close

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more or less under the action of forces incident
Per H to the heating of the piston during operation.

22. A piston comprising in combination a head portion having an end wall and a side wall, a guide portion having diametrically opposite cylinder-engaging parts thereof
Per I designed to take the angular thrust of a connecting rod and each separated at its upper end from the said side wall by an air gap, a pair of

separated pin bosses disposed on an axis between said cylinder-engaging parts, a pair of walls connected to said bosses and to said cyl-

E^c contd nder-engaging parts, and connections extending from the bosses to the head section, one of the said cylinder-engaging parts being split longitudinally between the points of attachment thereto of the said walls.

23. In a piston, the combination of a head portion having an end wall and a side wall, a guide portion, a pair of separated piston pin bosses connected to the head portion, and webs disposed longitudinally of the piston integrally joining the inner parts of said bosses to the guide portion in the zone of said bosses.

24. A piston for internal combustion engines comprising a head portion, a guide portion, a pair of separated pin bosses connected to the head portion and arranged within the maximum diameter of the piston whereby the outer ends of the bosses will be out of contact with the cylinder wall, and a flange on each of said bosses near its inner end extending laterally from both sides of the boss to the guide portion in a curve and integrally united with the guide portion in the zone of

the boss, said flange being disposed longitudinally of the piston.

Sub F

(Cls 25-27)

Nichols 25. A piston for internal combustion en-
views of gines comprising a head portion, a guide por-
Marcel tion, a pair of separated pin bosses having
 their outer ends within the maximum diameter
 of the piston, each of said bosses having a passage ex-
 tending entirely through its wall, and means including
 a recess cooperating with said passage for collecting
 lubricant and conducting it to the interior of the boss.

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Unwar- 26. A piston having a solid end portion
ranted and a T-shaped slot formed in the peripheral
 face of the piston in which the transverse por-
 tion of said T-shaped slot is disposed adjacent the solid
 end of the piston, said slot forming adjacent discon-
 nected peripheral portions which are capable
E* contd of unrestrained outward and inward move-
 ment.

per K 28. 29F. 27. A one piece piston provided
per H: with a solid end portion and a skirt portion
 having oppositely disposed thrust bearing
per H faces and, said skirt portion having a longi-
 tudinally extending slot formed through the
 thickness of its wall, said slot extending from
per H the rear edge of the skirt portion through one
 of said thrust bearing faces and forming ad-
per H jacent disconnected parts of a thrust bearing
 face portions in said skirt portion which are
 capable of being moved inwardly or outwardly without
 restraint.

29. 30F. 28. A piston comprising a head and body,
 internal yielding ribs supporting the head and body, and
 means on said ribs adapted to form engaging connection
 with operable parts for said piston.—

Insert G¹

(Cls 30-32)

The foregoing amendment has been prepared after
 a very careful consideration not only of the references
 last cited by the Examiner but of all prior art known
 to the applicant.

A reconsideration is respectfully asked of Claims 1, 12, and 13, previously numbered 3, 20, and 21, respectively, as it is thought that these claims were rejected improperly and possibly unintentionally.

Claim 1 specifies that the pin bosses are connected to the head and to the *upper and lower parts* of the skirt. This language is believed to clearly and patentably distinguish the claim from the prior art, indeed such distinction has been recognized by the Examiner in the allowance of Claim 4, previously numbered 6.

Claim 12 is distinguished from the references in

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Ser. No. 204,661.

12448

much the same manner by specifying "connecting flanges in the zone of the bosses - - -". In addition, Claim 12 specifies the two separated pin bosses, circumferential and longitudinal splits or slots to permit free expansion and contraction of the skirt portion, and the cutting away of the skirt portion adjacent the ends of the bosses. It is submitted that the Examiner's rejection of this claim is not justified, because the Spillman et al patent No. 1,092,870 has neither the connecting flanges in the zone of the bosses nor the longitudinal split in the skirt, and the piston of the Ebbs patent, which is designed for heavy slow moving internal combustion engines does not have the separated bosses, nor does it have a skirt portion "cut away adjacent the outer ends of the piston bosses" and, finally, the patent to Van Bever has slots 16 which provide for the adjustment of the piston skirt but do not "permit free expansion and contraction." The ring 17 of Van Bever positively prevents contraction.

Claim 13 specifies that the cylinder-engaging part is separated from the head portion and that the skirt is split "on one side only of the pin bosses to permit free expansion and contraction of the skirt portion." This construction is especially advantageous in that applicant's piston can be mounted so that the relatively light angular thrust of the connecting rod during the compression stroke is taken by the relatively weak split side of the piston guide structure whereas the much heavier angular thrust during the explosion stroke is sustained by the stronger unsplit side of the guide structure. There is no suggestion of this feature in the references.

With respect to the claims which have been cancelled and the new claims which are presented by the foregoing

amendment, applicant desires to remark that many if not all of the claims cancelled are believed to have presented subjects matter patentable over the references and have only been cancelled with a view to a clearer

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and better presentation of the subjects matter in the new claims. With respect to these new claims attention is directed to the following considerations:

Claim 14 brings out the relative arrangement of the head and guide portions, the bosses, and the connecting walls or webs, and calls for an unobstructed air gap between the ring-packed side wall of the head portion and the upper edges of the active cylinder-engaging parts of the guide portion. By active cylinder-engaging part, I mean the part of the guide structure at one side of the pin bosses which is active in sustaining the angular thrust of the connecting rod. The practical merit of the structure defined by this claim has been thoroughly demonstrated in practice. The inter-connection of the head and guide portions and the bosses by the longitudinally disposed webs or walls provides a construction that is exceedingly strong in its adaptation to resist longitudinal stresses and at the same time the unobstructed air gap between the head and guide portions insures the lowest possible working temperature in the active cylinder-engaging parts of the guide.

Claim 15 brings out the provision of a guide with a cylinder-engaging part on one side that is separated by an air gap from the head portion and that is split longitudinally to accommodate expansion incident to the heating of the piston. One of the notable advantages of this construction has already been pointed out in connection with Claim 13. It may be noted, furthermore, that the patent to Ebbs, which the Examiner cited to show a slotted skirt structure, shows slots or openings between the two active cylinder-engaging parts of the guide and does not show an active cylinder-engaging part which is itself slotted to accommodate expansion under heating.

Claim 16 calls for active cylinder-engaging parts on both sides of the piston which are separated from the head portion by air gaps, with one of the said cylinder-engaging parts split longitudinally. Clearly, this subject matter is not disclosed in the references.

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Ser. No. 204,661.

12450

Claim 17 is along the line of Claim 14 but brings out in addition the unbroken skirt formation between the active cylinder-engaging parts at the lower or open end of the guide portion of the piston.

Claim 18 is along the line of Claim 17 but specifies in addition the longitudinal split through one of the active cylinder-engaging parts.

Claim 19 is directed more especially to the nature of the connections between the bosses and the head, in conjunction of course with other features of applicant's construction.

Claim 20 is along the line of Claim 16 but is more specific as to the walls joining the head and guide portions and the bosses.

Claim 21 is also along the line of Claim 16 but specifies in addition the yielding or resilient character of the guide structure which permits the closing and opening of the split wall of the skirt.

Claim 22 brings out more specifically the location of the longitudinal split of the guide portion with respect to the walls which connect the guide portion, the bosses and the head.

Claim 23 brings out the relation of the head and guide portion, the bosses and the longitudinally disposed walls which connect them, the structure defined being exceedingly strong with respect to the longitudinal stresses to which the piston structure is subjected.

Claim 24 is along lines somewhat similar to Claim 23 but brings out the curved formation of the connecting webs or walls, one form of such construction being shown in Figs. 5 and 6 of the drawing.

Claim 25 is specifically directed to applicant's means which are provided for oiling the pin boss bearings.

Claims 26 and 27 are identical with Claims 5 and 10, respectively, of the patent to Long, No. 1,395,441.

Claim 28 is identical with Count 1 of the Issue in

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Ser. No. 204,661

12451

Interference No. 43,351, Hartog vs. Pomeroy, which has recently been brought to applicant's attention.

Applicant seems clearly entitled to make Claims 26, 27 and 28 and believes that he is the first inventor of the subjects matter defined in said claims.

In the drawing, the reference numeral "19" is incorrectly applied in Figs. 1 and 5. Permission is re-

quested to have these numerals changed to agree with Fig. 3 and with the specification as shown on the print filed herewith.

Respectfully submitted,

EDWARD J. GULICK,

By MILTON TIBBETTS,

His Attorney.

Detroit, Mich.

September 8, 1922.

—11—

204661—42

(Patent Office Oct 6 1922 Mailed)

2—260

Div. 12 Room 322

Paper No. 12

Address only

"The Commissioner of Patents,
Washington, D. C.,"
and not any official by name.

All communications respecting this application should give the serial number, date of filing, title of invention, and name of the applicant.

Ch-D

DEPARTMENT OF THE INTERIOR

UNITED STATES PATENT OFFICE

Washington, Oct. 6, 1922

Milton Tibbetts,
c/o Packard Motor Car Co.,
Detroit, Mich.

Please find below a communication from the Examiner in charge of the application of Edward J. Gulick, Filed Nov. 30, 1917, Serial No. 204,661, Pistons.

THOMAS E. ROBERTSON,

Commissioner of Patents.

Amended Sept. 11, 1922.

Claims 14 and 16 to 22 inclusive are rejected as being unwarranted by applicant's disclosure. The skirt portion shown by the drawings is not divided into "parts," "sections" or "portions." The same consists of a

single unitary structure or cylindrical body split on one side only. It is not thought such a structure can be accurately described as being divided into "segments" or parts. Such a division would be purely arbitrary and along imaginary lines, as it would be extremely difficult to ascertain just where one part ended and the other began, the whole skirt being in one piece.

Claim 25 is rejected on Nichols of record in view of Marcil, 920,165, May 4, 1909 (74-109-4)

Claim 26 is rejected as being unwarranted. It is not thought that the configuration formed by joining the circumferential and vertical or longitudinal slots, shown by applicant, can be accurately described as "T-shape." There appears to be a too remote resemblance, if any, between a "T" and a character of this nature "p", or

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204,661-2

this "q".

Inasmuch as the subject matter defined by claim 28 does not appear to have been embraced in the statement of invention or claims originally presented, applicant is required to file a supplemental oath, in accordance with Rule 48 of the Rules of Practice, in support of same.

The remaining claims are allowed.

The examiner notes that allowed claim 27 has been copied from the patent to Long, No. 1,395,441, and interference proceedings will be instituted in due course.

P. P. PIERCE,

V.I.C.

Examiner.

204661-44

12452

(Mail Room Mar 19 1923 U. S. Patent Office)

IN THE UNITED STATES PATENT OFFICE

Division 12, Paper No. 13

Mar 20 1928

U. S. Patent Office

Application of
Edward J. Gulick,
Pistons,
Serial No. 204,661,
Filed November 30, 1917.

Amdt F
&
Sup. Oath
Div.—12,
Rm.—322.

Not ent Ch.

The Commissioner of Patents,
Washington, D. C.

Sir:—

In response to the Office Letter of October 6th, 1922, applicant amends as follows:

On page 4 of the specification, strike out the matter heretofore inserted in line 12 after the period, and insert in lieu thereof the following:
F — *As these openings are well above the bottom of the guide portion of the piston the lower end of the piston skirt is left unbroken, except for the split 21, and the arcuate parts of the skirt beneath said openings may be looked upon as joining the lower ends of the diametrically opposite cylinder-engaging parts of the guide that sustain the angular thrust of the connecting rod.*

Insert the words —on an axis— at the following points in the claims:

Claim 14, line 7, after "disposed";
 Claim 16, line 7, after "disposed";
 Claim 17, line 9, after "disposed";
 Claim 18, line 10, after "disposed";
 Claim 19, line 5, after "disposed";
 Claim 20, line 8, before "between";
 Claim 21, line 7, after "disposed";
 Claim 22, line 6, after "disposed".

In Claim 17, line 5, and in Claim 18, lines 4 and 5, strike out "constituting unbroken continuations of" and insert in lieu thereof —joining—.

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Serial No. 204,661.

12453

In Claim 19, line 4, before "each", insert
F² —to take the angular thrust of a connecting rod and —.

Same claim, line 9, change "end portions" to —head portion—.

Strike out Claims 25 and 26, and insert the following claims:

—25. A piston for internal combustion engines, comprising a head portion, a guide portion, a pair of separated pin bosses having their outer ends within the maximum diameter of the
per H
F³

piston, and means for lubricating the interior of each of said bosses comprising a passage extending entirely through its wall, a recess in the peripheral wall of the guide portion and a duct leading from said recess to said passage.

25. 26. An integrally formed piston for internal combustion engines comprising in combination a head portion having an end wall and a side wall, a pair of separated pin bosses, and a guide portion
 per H connected to said bosses and having on one side a cylinder-engaging part disposed to take the angular thrust of a connecting rod during one stroke of the piston, said cylinder-engaging part
 per H being separated at its upper end from said side wall of the head portion by an air gap and be-
 per H ing split longitudinally between its connection to said bosses to accommodate expansion incident to the heating of the piston.

F³ 26. 27. An integrally formed piston for internal combustion engines comprising in combination a head portion having an end wall and a side wall, a guide portion having diametrically
 per I opposite cylinder-engaging parts thereof designed to take the angular thrust of a connecting rod and each separated at its upper end
 per H from the said side wall by an air gap, spaced supporting connections between said head and
 per H guide portions, and one of said cylinder-engaging parts being split longitudinally between its supporting connections from its upper edge to

—2—

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Serial No. 204,661.

12454

its lower edge, and a pair of separated pin bosses disposed on an axis between said cylinder-engaging parts.

27. 28. A one-piece piston with a solid
 per H end portion and a skirt portion supported therefrom by spaced integral connections and having formed in its peripheral face a transverse slot adjacent the solid end of the piston
 per H and a single longitudinal slot in the skirt between the spaced integral connections and
 per H extending from the transverse slot to the open end of the piston, said slots forming adjacent disconnected main peripheral bear-

per H^a ing portions in the skirt which are capable
 Insert H^a of unrestrained outward and inward movement.— (4) H^a

Renumber Claims 27 and 28 as 29 and 30.

The Examiner's criticism of Claims 14 and 16 to 22, inclusive, has been carefully considered and it is respectfully submitted that the criticism is not well founded. The Examiner states that the "skirt portion shown by the drawings is not divided into 'parts,' 'sections,' or 'portions'." Apparently the Examiner has misread the claims since none of them describes the skirt as "divided into" parts, sections or portions. What the claims do describe is "a guide portion having diametrically opposite cylinder-engaging parts to take the angular thrust of a connecting rod." To be sure these "diametrically opposite cylinder-engaging parts" are defined only by imaginary lines insofar as the disclosure of the piston structure is concerned, but the description of these parts as "opposite cylinder-engaging parts" is by no means "arbitrary," as stated by the Examiner. As is understood by every engineer familiar with internal combustion engine practice, a certain amount of working clearance between the piston and its cylinder is absolutely

—3—

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Serial No. 204,661.

12455

essential and, as a result of this clearance, the amount of the peripheral piston surface which actually engages the cylinder wall to take the angular thrust of the connecting rod is limited to two sections or parts each very considerably less than 180° in extent and disposed, of course, on opposite sides of the wrist pin. The angular extent of these cylinder-engaging parts is somewhat variable with the amount of the clearance, but with the cylinder and piston parts of given dimensions the angular extent of these opposite cylinder-engaging parts can be definitely determined, and there is nothing "arbitrary" about the matter.

It is respectfully submitted that the terminology of the claims in question is clear and strictly in accord with the facts and a reconsideration and allowance of said claims is urged.

Claim 25 has been rewritten to more clearly characterize the distinguishing features of applicant's lubricating means. It is submitted that the reference patents to Nichols and Marcell fall short of suggesting applicant's

construction. In the patent to Marcell there seems to be no provision whatever for conducting lubricant to the passages ~~25~~, and the construction shown in the Nichols patent would not be applicable to a piston of the type of applicant's as defined in Claim 25.

With respect to former Claim 26, which was identical with Claim 5 of the patent to Long, No. 1,395,441, the Examiner's position is understood to be that said claim in the Long patent must be read as limited to a literally T-shaped slot and that a piston in which the horizontal slot extends around the piston does not fall within the bounds of the claim.

Therefore, in order to avoid further delay in the declaration of an interference with the Long patent, applicant has eliminated the "T-shaped" terminology and respectfully urges that an interference involving Claim

—4—

204661—48

Serial No. 204,661.

12456

29 (Claim 10 of the Long patent) be at once declared.

A supplemental oath is filed herewith in view of the Examiner's requirement in connection with Claim 30 (former Claim 28).

Respectfully submitted,

EDWARD J. GULICK,

By MILTON TIBBETTS,

His Attorney.

—5—

204661—49

12457

(Mail Room U. S. Patent Office Mar 19 1923)

IN THE UNITED STATES PATENT OFFICE

Application of
Edward J. Gulick,
Pistons,
Serial No. 204,661,
Filed November 30, 1917.

SUPPLEMENTAL OATH

COUNTY OF CUYAHOGA }
STATE OF OHIO } ss.

The undersigned, EDWARD J. GULICK, being first duly sworn, deposes and says that he is the Edward J. Gulick who filed the above-entitled application, Serial No. 204,-

661; that he has read the said application as it stands amended after the filing of the amendatory paper filed September 11th, 1922; that the subjects matter of all amendments of the said application, including the amendment filed September 11th, 1922, were part of his invention, were invented before he filed his original application, above identified, for such invention; that he does not know and does not believe that his invention, including the subjects matter of the said amendments, was ever known or used before his invention or discovery thereof, or patented or described in any printed publication in any country before his invention or discovery thereof, or more than two years prior to this application, or in public use or on sale in the United States for more than two years prior to this application; that said invention, including the subjects matter of the said amendments, has not been patented in any country foreign to the United States on an application filed by him or his legal representatives or assigns more than twelve months prior to this application; that no application for patent on said invention, including the subjects matter of the said amendments, has been filed by him or his legal representatives or assigns in any country foreign to the

204661—50

Gulick Ser. No. 204,661.

12458

United States; and that his said invention, including the subjects matter of the said amendments, has never been abandoned.

EDWARD J. GULICK.

Sworn to, subscribed and acknowledged, before me this 8th day of November, 1922.

HELEN M. SINGER,

(Notarial Seal)

Notary Public.

—2—

204661—51

(Mailed Patent Office Apr 5 1923)

2-260

Div. 12 Room 322

Paper No. 14

Address only

"The Commissioner of Patents,
Washington, D. C.,"
and not any official by name.

Ch-D

All communications respecting this
application should give the serial number,
date of filing, title of invention, and
name of the applicant.

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Washington, April 5, 1923.

Copy sent applicant
and assignee

Milton Tibbetts,
c/o Packard Motor Car Co.,
Detroit, Mich.

Please find below a communication from the EXAM-
INER in charge of the application of Edward J. Gulick,
Filed Nov. 30, 1917, Serial No. 204,661, PISTONS.

THOMAS E. ROBERTSON,
Commissioner of Patents.

Amended March 19, 1923.

The following claims are suggested to the applicant,
for the purpose of interference:

—A piston open at one end and having a packing
ring supporting portion and a cylinder engaging por-
tion, said cylinder engaging portion having a slot which
is cut through the thickness of its peripheral wall and
extending from the open end of the piston to said ring
supporting portion, a pair of wrist pin bearings depend-
ed from said ring supporting portion separated from
said cylinder engaging portion, and tying means ex-
tending from each of said wrist pin bearings each being
co-operably connected at their opposite ends to said cyl-
inder engaging portion.

A piston having a head with top and side walls in combination with a guide structure connected thereto and comprising diametrically opposite cylinder-engaging parts formed with air spaces between their upper edges and the bottom edge of the side wall of the head, wrist pin bosses between the cylinder-engaging parts, and means joining said bosses and cylinder-engaging parts together, the said joining means being resiliently yieldable and arranged not to engage the cylinder.

A piston closed at one end and open at its opposite end, said piston having an annular cutting formed through the thickness of its peripheral wall thereby providing a separated sleeve-like skirt which is approximately cylinder bearing in its entirety, a pair of wrist pin bearings depended from said piston end and being free from engagement with said skirt, supporting means extending from each of said bearings to said skirt, said skirt being provided with a longitudinal slot cut through the thickness of its wall and extending from the open end thereof to said annular cutting.

Failure to make the above claims within thirty days

204661—52

204,661—2

from the date of mailing of this letter will be taken as a disclaimer of the subject matter covered thereby.

R. M. WEAVER,

Acting Examiner, Div. 12.

V.I.C.

204,661—53

12459

(Mail Room Apr 18 1923 U. S. Patent Office)

Division 12, Paper No. 15

Apr 17 1923

U. S. Patent Office

IN THE UNITED STATES PATENT OFFICE

Edward J. Gulick

Pistons

Filed November 30, 1917

Room No. 322

Division No. 12

Serial No. 204,661

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

G This application is amended as follows:

Add the following claims:

30. 21G, 20. A piston open at one end and having a packing ring supporting portion and a cylinder engaging portion, said cylinder engaging portion having a slot which is cut through the thickness of its peripheral wall and extending from the open end of the piston to said ring supporting portion, a pair of wrist pin bearings depended from said ring supporting portion and separated from said cylinder engaging portion, and tying means extending from each of said wrist pin bearings each being co-operably connected at their opposite ends to said cylinder engaging portion.

31. 22G, 20. A piston having a head with top and side walls in combination with a guide structure connected thereto and comprising diametrically opposite cylinder-engaging parts formed with air spaces between their upper edges and the bottom edge of the side wall of the head, wrist pin bosses between the cylinder-engaging parts, and means joining said bosses and cylinder-engaging parts together, the said joining means being resiliently yieldable and arranged not to engage the cylinder.

32. 23G, 21. A piston closed at one end and open at its opposite end, said piston having an annular cutting

204661—54

12460

formed through the thickness of its peripheral wall thereby providing a separated sleeve-like skirt
G' contd which is approximately cylinder bearing in its entirety, a pair of wrist pin bearings depended from said piston end and being free from engagement with said skirt, supporting means extending from each of said bearings to said skirt, said skirt being provided with a longitudinal slot cut through the thickness of its wall between its connections to said supporting means and extending from the open end thereof to said annular cutting.—

Add H¹⁰

Old 33-43

REMARKS

This amendment is in response to the Office Letter of April 5, 1923 and applicant reserves the right to consider the claims again after the structure upon which they have been drawn is disclosed.

Respectfully,

EDWARD J. GULICK,

By MILTON TIBBETTS,

His Attorney.

Detroit, Michigan

April 13, 1923

MT:TS

—2—

204661—55.

2—079

INTERFERENCE (1).

Interference No. 49569

Paper No. 16

Name, Edward J. Gulick

Serial No. 204661

Title, Pistons

Filed, Nov. 30/17

Interference with R. E. Day, G. A. Taylor; H. E. Maynard; S. D. Hartog, E. C. Long & Frank Jardine.

DECISIONS OF

Primary Examiner,

Dated,

Ex'r of Interferences, Favorable

Dated, July 2/28

Board, Affirmed

Dated, June 3-1929

Commissioner, Court Affirmed

Dated, Feby. 25, 1931

REMARKS:

.....

 This should be placed in each application or patent involved in interference in addition to the interference letters by Primary Examiner.

(U. S. Patent Office Jul 7 1923 Mailed)

2-217

Forwarded from 12 Div. to
Examiner of Interferences.
June 15 1923
Ch-D

Paper No. 17
[Interference.]
"A" (1)

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Washington, D. C.

Copy sent assignee

Milton Tibbetts,
c/o Packard Motor Car Company,
Detroit, Michigan.

Please find below a copy of a communication from
the Examiner concerning the application of Edward J.
Gulick, Filed Nov. 30, 1917, Serial No. 204,661, Pistons.

Very respectfully,

THOMAS E. ROBERTSON,

Commissioner of Patents.

Room No. 322

Address only

The Commissioner of Patents
Washington, D. C.

49569

The case, above referred to, is adjudged to interfere
with others, hereafter specified, and the question of prior-
ity will be determined in conformity with the Rules.

The statement demanded by Rule 110 must be sealed
up and filed on or before Aug. 27, 1923, with the subject
of the invention, and name of party filing it, indorsed
on the envelope. The subject-matter involved in the
interference is

Count

1. A piston for internal combustion engines com-
prising in combination a head portion having an end wall
and a side wall, a guide portion having on one side a
cylinder-engaging part disposed to take the angular
thrust of a connecting rod during one stroke of the pis-
ton, said cylinder-engaging part being separated at its
upper end from said side wall by an air gap and being

split longitudinally to accommodate expansion incident to the heating of the piston, a pair of separated pin bosses, and walls integrally uniting said bosses, the guide portion and the head portion.

This interference involves your application above identified and an application for Pistons, filed by Ray E. Day, of 3825 North 24th Street, Tacoma, Wash., whose attorney is Clarence E. Mehlhope, of Marquette Bldg., Chicago, Illinois.

An application for Pistons, filed by George A. Taylor, of 164 Dana Avenue, Hyde Park, Mass., whose attorney is Macleod, Calver, Copeland and Dike, of Tremont Bldg., Boston, Mass.,

An application for Pistons, filed by Frank Jardine,

204661—57

204,661—2

of c/o The Aluminum Castings Co., Cleveland, Ohio, whose attorney is B. D. Watta, of 451 Lennox Bldg., East 9th & Euclid Ave., Cleveland, Ohio, and whose assignee is the Aluminum Manufactures Inc., Cleveland, Ohio,

An application for Pistons, filed by Howard E. Maynard, of 700 Calvert Avenue, Detroit, Michigan, whose attorney is Whittemore, Hulbert & Whittemore, of Penobscot Bldg., Detroit, Michigan,

An application for Pistons, filed by Stephen D. Hartog, of 3219 Natural Bridge Ave., St. Louis, Missouri, whose attorney is Rippey and Kingsland of The Rialto Bldg., St. Louis, Missouri, and

An application for Internal Combustion Engine Pistons, filed by Elmer C. Long, of 1037 Main St., Quincy, Illinois, whose attorney is Herbert G. Fletcher, of 321 International Life Bldg., c/o Knight Bros., St. Louis, Missouri.

The relation of the count of the interference to the claims of the respective parties is as follows:

Count Day Gulick Hartog Jardine Long Maynard Taylor

1 14 15 30 15 10 12 13

P. P. PIERCE,

Examiner, Div. 12.

V.I.C.

204661—58

2-079

INTERFERENCE.

"B" (2)

Interference No. 49570

Paper No. 18

Name, Edward J. Gulick

Serial No. 204,661

Title, Pistons

Filed, Nov. 30, 1917

Interference with S. D. Hartog; H. E. Maynard; F. Jardine; E. C. Long; G. A. Taylor and R. E. Day.

DECISIONS OF

Primary Examiner,
 Ex'r of Interferences, Favorable
 Board, Affirmed
 Commissioner, Court Affirmed

Dated,
 Dated, July 2/28.
 Dated, June 3-1929
 Dated, Feby. 25, 1931

REMARKS:

.....

 This should be placed in each application or patent involved in interference in addition to the interference letters by Primary Examiner.

204661-59

(Mailed U. S. Patent Office Jul 7 1923)

Forwarded from 12 Div. to
 Examiner of Interferences.

Paper No. 19
 [INTERFERENCE.]

June 15, 1923

Ch-D

"B"

(2)

DEPARTMENT OF THE INTERIOR
 UNITED STATES PATENT OFFICE
 Washington, D. C.

Copy sent assignee.

Milton Tibbetts,

c/o Packard Motor Car Company,
 Detroit, Michigan.

Please find below a copy of a communication from the Examiner concerning the application of Edward J. Gulick, Filed Nov. 30, 1917, Serial No. 204,661, PISTONS.

Very respectfully,

THOMAS E. ROBERTSON,
 Commissioner of Patents.

Room No. 322

Address only

The Commissioner of Patents
Washington, D. C.

49570

• The case, above referred to, is adjudged to interfere with others, hereafter specified, and the question of priority will be determined in conformity with the Rules.

The statement demanded by Rule 110 must be sealed up and filed on or before Aug. 27, 1923, with the subject of the invention, and name of party filing it, indorsed on the envelope. The subject-matter involved in the interference is

Count:

1. A piston comprising a head and body, internal yielding ribs supporting the head and body, and means on said ribs adapted to form engaging connection with operable parts for said piston.

This interference involves your application above identified and an application for PISTONS, filed by Ray E. Day, of 3825 N. 24th Street, Tacoma, Wash., whose attorney is Clarence E. Mehlhope, of Marquette Bldg., Chicago, Ill.,

An application for PISTONS, filed by George A. Taylor, of 164 Dana Ave., Hyde Park, Mass., whose attorney is Macleod, Calver, Copeland & Dike, of Tremont Bldg., Boston, Mass.,

An application for PISTON FOR AN INTERNAL COMBUSTION MOTOR filed by Elmer C. Long, of 4834 Beaubien St., Detroit, Mich., whose attorney is Herbert G. Fletcher, of 1111 Internation Life Bldg., St. Louis, Missouri,

204661—60

204661—2

An application for PISTONS, filed by Frank Jardine, of c/o The Aluminum Castings Co., Cleveland, Ohio, whose attorney is B. D. Watts, of 451 Lennox Bldg., East 9th & Euclid Ave., Cleveland, Ohio, and whose assignee is the Aluminum Manufactures Inc., of Cleveland, Ohio,

An application for PISTONS, filed by Howard E. Maynard, of 700 Calvert Ave., Detroit, Michigan, whose attorney is Whittemore, Hulbert & Whittemore, of Penobscot Bldg., Detroit, Michigan, and

An application for PISTONS, filed by Stephen D. Hartog, of 3219 Natural Bridge Ave., St. Louis, Mo., whose attorney is Rippey & Kingsland, of The Rialto Bldg., St. Louis, Missouri.

The relation of the count of the interference to the claims of the respective parties is as follows:

Count Day Gulick Hartog Jardine Long Maynard Taylor
 1 15 /30 1 16 13 13 14.

P. P. PIERCE,
Examiner, Div. 12.

V.I.C.

204661—61

2-079

INTERFERENCE.

Interference No. 49571

Name, Edward J. Gulick,

Serial No. 204,661

Title, PISTONS

Filed, Nov. 30, 1917

Interference with R. E. Day; G. A. Taylor; Albert Spillman; F. Jardine; H. E. Maynard; E. C. Long (Kelm added)

Intfs. Nos. 49573, 49577 & 49588 consolidated herewith.

"C" (3)
 Paper No. 20

DECISIONS OF

Primary Examiner,
 Ex'r of Interferences, Favorable
 Board, Affirmed
 Commissioner,

Dated,
 Dated, July 2/28
 Dated, June 3 1929
 Dated,

REMARKS:

.....

 This should be placed in each application or patent involved in interference in addition to the interference letters by Primary Examiner.

204661—62

1882

Defendants' Exhibit 4-L, File Wrapper

(Mailed U. S. Patent Office Jul 7 1923)

2-213

Forwarded from 12 Div. to
Examiner of Interferences.
June 15, 1923.

Paper No. 21
[INTERFERENCE.]
"G" (3)

Ch-D

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE
Washington, D. C.

Milton Tibbetts,
c/o Packard Motor Car Company,
Detroit, Michigan.

Please find below a copy of a communication from
the Examiner concerning the application of Edward J.
Gulick, Filed Nov. 30, 1917, Serial No. 204,661, PISTONS.

Very respectfully,

THOMAS E. ROBERTSON,
Commissioner of Patents.

Room No. 322

Address only

The Commissioner of Patents
Washington, D. C.

49571

The case, above referred to, is adjudged to interfere with others, hereafter specified, and the question of priority will be determined in conformity with the Rules.

The statement demanded by Rule 110 must be sealed up and filed on or before Aug. 27, 1923, with the subject of the invention, and name of party filing it, indorsed on the envelope. The subject-matter involved in the interference is

Count.

1. A piston open at one end and having a packing ring supporting portion and a cylinder engaging portion, said cylinder engaging portion having a slot which is cut through the thickness of its peripheral wall and extending from the open end of the piston to said ring supporting portion, a pair of wrist pin bearings de-

pended from said ring supporting portion and separated from said cylinder engaging portion, and tying means extending from each of said wrist pin bearings each being co-operably connected at their opposite ends to said cylinder engaging portion.

This interference involves your application above identified and an application for PISTONS, filed by Ray E. Day, of 3825 North 24th St., Tacoma, Wash., whose attorney is Clarence E. Mehlhope, of Marquette Bldg., Chicago, Ill.

An application for PISTONS, filed by George A. Taylor, of 164 Dana Ave., Hyde Park, Mass., whose attorney is Macleod, Calver, Copeland & Dike, of Tremont Bldg., Boston, Mass.,

An application for ENGINE PISTONS, filed by Albert Spillman, of 261 Payne Ave., North Tonawanda, New York, whose attorney is Geyer and Popp, of 619 Brisbane Bldg., Buffalo, N. Y.,

204661—63

434,467—2

An application for PISTONS, filed by Frank Jardine, of c/o The Aluminum Castings Company, Cleveland, Ohio, whose attorney is B. D. Watts, of 451 Lennox Bldg., East 9th & Euclid Ave., Cleveland, Ohio, and whose assignee is the Aluminum Manufactures Inc., of Cleveland, Ohio,

An application for PISTON, filed by Elmer C. Long, of 1037 Main St., Quincy, Illinois, whose attorney is Herbert G. Fletcher, of International Life Bldg., St. Louis, Mo., and

An application for PISTONS, filed by Howard E. Maynard, of 700 Calvert Avenue, Detroit, Michigan, and whose attorney is Whittemore, Hulbert & Whittemore, of Penobscot Bldg., Detroit, Michigan.

The relation of the count of the interference to the claims of the respective parties is as follows:

Count Day Gulick Jardine Long Maynard Spillman Taylor

1 16 31 17 1 14 13 15

P. P. PIERCE,

Examiner, Div. 12.

V.I.C.

204661—64

2-079

INTERFERENCE (4).

Interference No. 49572
Name, Edward J. Gulick
Serial No. 204,661
Title, Pistons
Filed, Nov. 30, 1917

Paper No. 22

Interference with E. C. Long; S. D. Hartog; H. E. May-
nard; F. Jardine; A. D. Spillman and G. A. Taylor.

DECISIONS OF

Primary Examiner,
Ex'r of Interferences, Consolidated
with No. 49569
Board,
Commissioner,

Dated,

Dated, 6 ct 8/25

Dated,

Dated,

REMARKS:

.....
.....
This should be placed in each application or patent
involved in interference in addition to the interference
letters by Primary Examiner.

204661-65

(U. S. Patent Office Jul 7 1923 Mailed)

Forwarded from 12 Div. to
Examiner of Interferences.

Paper No. 23

[INTERFERENCE.]

June 15, 1923

"D" (4)

Ch-D

2-213

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Washington, D. C.

Copy sent assignee.

Milton Tibbetts,
c/o Packard Motor Car Co.,
Detroit, Michigan.

Please find below a copy of a communication from
the Examiner concerning the application of Edward J.
Gulick, filed Nov. 30, 1917, Serial No. 204,661, PISTONS.

Very respectfully,

THOMAS E. ROBERTSON,
Commissioner of Patents.

Room No. 322

Address only

The Commissioner of Patents
Washington, D. C.

49572

The case, above referred to, is adjudged to interfere
with others, hereafter specified, and the question of prior-
ity will be determined in conformity with the Rules.

The statement demanded by Rule 110 must be sealed
up and filed on or before Aug 27 1923, with the subject of
the invention, and name of party filing it, indorsed on
the envelope. The subject-matter involved in the inter-
ference is

Count.

1. A piston having a head with top and side walls
in combination with a guide structure connected thereto
and comprising diametrically opposite cylinder-engaging
parts formed with air spaces between their upper edges
and the bottom edge of the side wall of the head, wrist
pin bosses between the cylinder-engaging parts, and
means joining said bosses and cylinder-engaging parts
together, the said joining means being resiliently yield-
able and arranged not to engage the cylinder.

This interference involves your application above identified and an application for Pistons, filed by George A. Taylor, of 164 Dana Ave., Hyde Park, Mass., whose attorney is Macleod, Calver, Copeland & Dike, of Tremont Bldg., Boston, Mass.,

An application for Engine Pistons, filed by Albert Spillman, of 261 Payne Ave., North Tonawanda, N. Y., whose attorney is Geyer & Popp, of 619 Brisbane Bldg., Buffalo, N. Y.

An application for Pistons, filed by Frank Jardine, of c/o the Aluminum Castings Co., Cleveland, Ohio, whose attorney is B. D. Watts, of 451 Lennox Bldg., East

204661—66

204661—2

9th & Euclid Ave., Cleveland, Ohio, and whose assignee is the Aluminum Manufactures Inc., of Cleveland, Ohio,

An application for Pistons, filed by Howard E. Maynard, of 700 Calvert Ave., Detroit, Michigan, whose attorney is Whittemore, Hulbert & Whittemore, of Penobscot Bldg., Detroit, Mich.,

An application for Pistons for Internal Combustion Motors, filed by Elmer C. Long, of 1037 Main St., Quincy, Illinois, whose attorney is Herbert G. Fletcher, of c/o Knight Bros., 321 International Life Bldg., St. Louis, Mo., and

An application for Pistons, filed by Stephen D. Hartog, of 3219 Natural Bridge Avenue, St. Louis, Mo., and whose attorney is Rippey & Kingsland, of The Rialto Bldg., St. Louis, Mo.

The relation of the count of this interference to the claims of the respective parties is as follows:

Count Gulick Hartog Jardine Long Maynard Spillman Taylor

1 32 24 20 7 15 16 16.

P. P. PIERCE,

V. I. C.

Examiner, Div. 12.

204661—67

2-079

INTERFERENCE

Interference No. 49573

Name, Edward J. Gulick,

Serial No. 204,661

Title, Pistons

Filed, Nov. 30, 1917

Interference with Howard E. Maynard; Elmer C. Long;
Stephen D. Hartog; Frank Jardine and Ray E. Day."E" (5)
Paper No. 24

DECISIONS OF

Primary Examiner,
Ex'r of Interferences,
Board,
Commissioner,Dated,
Dated,
Dated,
Dated,

REMARKS:

.....

.....

This should be placed in each application or patent involved in interference in addition to the interference letters by Primary Examiner.

204661-63

(U. S. Patent Office Jul 7 1923 Mailed)

2-213

Forwarded from 12 Div. to
Examiner of Interferences.Paper No. 25
[INTERFERENCE.]

June 15, 1923

"E" (5)

Ch-D

DEPARTMENT OF THE INTERIOR

UNITED STATES PATENT OFFICE

Washington, D. C.

Copy sent assignee.

Milton Tibbetts,

c/o Packard Motor Car Company,
Detroit, Michigan.

Please find below a copy of a communication from the Examiner concerning the application of Edward J. Gulick, Filed Nov. 30, 1917, Serial No. 204,661, Pistons.

Very respectfully,

THOMAS E. ROBERTSON,
Commissioner of Patents.

Room No. 322

Address only

The Commissioner of Patents
Washington, D. C.

49573

The case, ~~above~~ referred to, is adjudged to interfere with others, hereafter specified, and the question of priority will be determined in conformity with the Rules.

The statement demanded by Rule 110 must be sealed up and filed on or before Aug 27 1923, with the subject of the invention, and name of party filing it, indorsed on the envelope. The subject-matter involved in the interference is

Count.

1. A piston comprising a head, a skirt separated at its periphery from the head, and pin bosses connected to the head and to the upper and lower parts of the skirt, said skirt being split longitudinally at one side between its connections to said bosses.

This interference involves your application above identified and an application for Pistons, filed by Ray E. Day, of 3825 North 24th St., Tacoma, Wash., whose attorney is Clarence E. Mehlhope, of Marquette Bldg., Chicago, Ill.,

An application for Pistons, filed by Frank Jardine, of c/o The Aluminum Castings Company, Cleveland, Ohio, whose attorney is B. D. Watts, of 451 Lennox Bldg., East 9th & Euclid Ave., Cleveland, Ohio, and whose assignee is the Aluminum Manufactures, Inc., of Cleveland, Ohio,

An application for Pistons, filed by Howard E. Maynard, of 700 Calvert Ave., Detroit, Michigan, whose attorney is Whittemore, Hulbert & Whittemore, of Penobscot Bldg., Detroit, Mich.,

204661—69

204,661—2

An application for Pistons, filed by Stephen D. Hartog, of 3219 Natural Bridge Avenue, St. Louis, Mo., whose attorney is Rippey and Kingsland, of The Rialto Bldg., St. Louis, Mo., and

An application for Internal Combustion Engine Pistons, filed by Elmer C. Long, of 1037 Main St., Quincy, Ill., whose attorney is Herbert G. Fletcher, of 321 International Life Bldg., St. Louis, Missouri.

The relation of the count of the interference to the claims of the respective parties is as follows:

Count	Day	Hartog	Gulick	Jardine	Long	Maynard
1	10	28	1	12	8	8

P. P. PIERCE,

Examiner, Div. 12.

V. I. C.

204661-70

2-079

INTERFERENCE.

Interference No. 49574

Name, Edward J. Gulick

Serial No. 204,661

Title, Pistons

Filed, Nov. 30, 1917

Interference with S. D. Hartog; H. E. Maynard; E. C.

Long; G. A. Taylor, R. E. Day

"F" (6)
Paper No. 26

DECISIONS OF

Primary Law Examiner, Interference

dissolved

Ex'r of Interferences,

Board,

Commissioner,

Dated, Apr. 4 1924

Dated,

Dated,

Dated,

REMARKS:

.....
.....
This should be placed in each application or patent involved in interference in addition to the interference letters by Primary Examiner.

204661-71

1900

Defendants' Exhibit 4-L, File Wrapper

(U. S. Patent Office Jul 7 1923 Mailed)

Forwarded from 12 Div. to
Examiner of Interferences.

Paper No. 27
[Interference.]

June 15, 1923
Ch-D

"F" (6)

2-213

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE
Washington, D. C.

Copy sent assignee.

Milton Tibbetts,
c/o Packard Motor Car Company,
Detroit, Michigan.

Please find below a copy of a communication from
the Examiner concerning the application of Edward J.
Gulick, Filed Nov. 30, 1917, Serial No. 204,661, Pistons.

Very respectfully,

THOMAS E. ROBERTSON,
Commissioner of Patents.

Room No. 322

Address only
The Commissioner of Patents
Washington, D. C.

49574

The case, above referred to, is adjudged to interfere
with others, hereafter specified; and the question of pri-
ority will be determined in conformity with the Rules.

The statement demanded by Rule 110 must be
sealed up and filed on or before Aug 27 1923, with the
subject of the invention, and name of party filing it, in-
dorsed on the envelope. The subject-matter involved in
the interference is

Count.

1. A piston closed at one end and open at its oppo-
site end, said piston having an annular cutting formed
through the thickness of its peripheral wall thereby
providing a separated sleeve-like skirt which is approxi-
mately cylinder bearing in its entirety, a pair of wrist
pin bearings depended from said piston end and being
free from engagement with said skirt, supporting means
extending from each of said bearings to said skirt, said

skirt being provided with a longitudinal slot cut through the thickness of its wall and extending from the open end thereof to said annular cutting.

This interference involves your application above identified and an application for Pistons, filed by Ray E. Day, of 3825 North 24th St., Tacoma, Wash., whose attorney is Clarence E. Mehlhope, of Marquette Bldg., Chicago, Ill.,

An application for Pistons, filed by George A. Taylor, of 164 Dana Ave., Hyde Park, Mass., whose attorney is Macleod, Calver, Copeland & Dike, of Tremont Bldg., Boston, Mass.,

An application for Pistons, filed by Elmer C. Long of 4834 Beaubien St., Detroit, Mich., whose attorney is Herbert G. Fletcher, of International Life Bldg., St. Louis, Missouri.

204661—72

204,661—2

An application for Pistons, filed by Howard E. Maynard, of 700 Calvert Ave., Detroit, Mich., whose attorney is Whittemore, Hulbert, and Whittemore, of Penobscot Bldg., Detroit, Michigan, and

An application for Pistons, filed by Stephen D. Hartog, of 3219 Natural Bridge Ave., St. Louis, Mo., and whose attorney is Rippey & Kingsland, of The Rialto Bldg., St. Louis, Missouri.

The relation of the count of the interference to the claims of the respective parties is as follows:

Count	Day	Gulick	Hartog	Long	Maynard	Taylor
1	18	33	32	1	16	18.

P. P. PIERCE,

Examiner, Div. 12.

V.I.C.

204661—73

2-079

INTERFERENCE.

"G" (7)

Paper No. 28

Interference No. 49575

Name, Edward J. Gulick,

Serial No. 204,661

Title, Pistons

Filed, Nov. 30, 1917

Interference with H. E. Maynard; E. C. Long; G. A. Taylor; R. E. Day

DECISIONS OF

Primary Examiner,

Dated,

Ex'r of Interferences,

Favorable

Dated, Apr 8/24

Board, "

Dated, Aug 7/24

Commissioner, Affirmed

Dated, Apr 7 1925

Court Affirmed

" Feby. 7, 1927.

REMARKS:

.....

 This should be placed in each application or patent involved in interference in addition to the interference letters by Primary Examiner.

204661-74

(U. S. Patent Office Jul 7 1923 Mailed)

2-213

Forwarded from 12 Div. to
Examiner of Interferences.

Paper No. 29
[Interference.]

June 15, 1923

"G" (7)

Ch-D

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,

WASHINGTON, D. C.

Copy sent assignee.

Milton Tibbetts,
c/o Packard Motor Car Company,
Detroit, Mich.

Please find below a copy of a communication from
the Examiner concerning the application of Edward J.
Gulick, Filed Nov. 30, 1917, Serial No. 204,661, Pistons.

Very respectfully,

THOMAS E. ROBERTSON,
Commissioner of Patents.

Room No. 322

Address only

The Commissioner of Patents
Washington, D. C.

49575

The case, above referred to, is adjudged to interfere
with others, hereafter specified, and the question of pri-
ority will be determined in conformity with the Rules.

The statement demanded by Rule 110 must be sealed
up and filed on or before Aug. 27, 1923, with the subject
of the invention, and name of party filing it, indorsed on
the envelope. The subject-matter involved in the inter-
ference is

Count.

1. A piston having a head portion with a ring groove
therein, a skirt portion having its cylinder-engaging
part separated from the head portion, separated pin
bosses having integral flanges connecting them with the
skirt on both sides of the bosses and with the head por-

tion respectively, said skirt being split from top to bottom on one side only of the pin bosses to permit free expansion and contraction of the skirt portion.

This interference involves your applications above identified and an application for PISTONS, filed by Ray E. Day, of 3825 North 24th St., Tacoma, Wash., and whose attorney is Clarence E. Mehlhope, of Marquette Bldg., Chicago, Ill.,

An application for PISTONS, filed by George A. Taylor, of 164 Dana Ave., Hyde Park, Mass., and whose attorney is Macleod, Calver, Copeland & Dike, of Tremont Bldg., Boston, Mass.,

An application for PISTON FOR AN INTERNAL COMBUSTION ENGINE, filed by Elmer C. Long, of 4834 Beaubien St., Detroit, Mich., and whose attorney is Herbert G. Fletcher, of 1111 International Life Bldg., St. Louis, Mo., and

204661—75

204,661—2

An application for PISTONS, filed by Howard E. Maynard, of 700 Calvert Ave., Detroit, Mich., and whose attorney is Whittemore, Hulbert & Whittemore, of Penobscot Bldg., Detroit, Mich.,

The relation of the count of the interference to the claims of the respective parties is as follows:

Count	Day	Gulick	Long	Maynard	Taylor
1	13	13	12	11	12.

P. P. PIERCE,

V.I.C.

Examiner, Div. 12.

204661—76

INTERFERENCE.

"H" (8)

Paper No. 30

Interference No. 49576

Name, Edward J. Gulick,

Serial No. 204,661

Title, Pistons

Filed, Nov. 30, 1917

Interference with H. E. Maynard; E. C. Long; F. Jardine; R. E. Day

DECISIONS OF

Primary Examiner,
Ex'r of Interferences, Favorable
Board,
Commissioner,

Dated,
Dated, Apr. 10/24.
Dated,
Dated,

REMARKS:

.....
.....
This should be placed in each application or patent involved in interference in addition to the interference letters by Primary Examiner.

204661-77

(U. S. Patent Office Jul 7 1923 Mailed)

Forwarded from 12 Div. to
Examiner of Interferences.

Paper No. 31
[Interference.]

June 15, 1923

"H" (8)

Ch-D

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, D. C.

Copy sent assignee.

Milton Tibbetts,
c/o Packard Motor Car Company,
Detroit, Mich.

Please find below a copy of a communication from the Examiner concerning the application of Edward J. Gulick, Filed Nov. 30, 1917, Serial No. 204,661, Pistons.

Very respectfully,

THOMAS E. ROBERTSON,
Commissioner of Patents.

Room No. 312

Address only

The Commissioner of Patents
Washington, D. C.

49576

The case, above referred to, is adjudged to interfere with others, hereafter specified, and the question of priority will be determined in conformity with the Rules.

The statement demanded by Rule 110 must be sealed up and filed on or before Aug. 27, 1923, with the subject of the invention, and name of party filing it, indorsed on the envelope. The subject-matter involved in the interference is

Count.

1. A piston comprising a head portion, a skirt portion, two separated pin bosses, connecting flanges in the zone of the bosses and extending from the bosses to the skirt on both sides of the bosses, connecting means from each of the bosses to the head portion, the skirt portion being entirely separated from the head portion except through the boss connections, and the skirt portion being split longitudinally of the piston to permit free expansion and contraction and the skirt portion being cut away adjacent the outer ends of the piston bosses.

This interference involves your application above identified and an application for Pistons, filed by Ray E. Day, of 3825 North 24th St., Tacoma, Wash., and whose attorney is Clarence E. Mehlhope, of Marquette Bldg., Chicago, Ill.,

An application for Pistons, filed by Frank Jardine, of c/o The Aluminum Castings Company, Cleveland, Ohio, whose attorney is B. D. Watts, of 451 Lennox Bldg., East 9th & Euclid Ave., Cleveland, Ohio, and whose assignee is the Aluminum Manufactures, Inc., Cleveland, Ohio,

204661—78

204,661—2

An application for Pistons, filed by Elmer C. Long, of 4834 Beaubien St., Detroit, Mich., and whose attorney is Herbert G. Fletcher, of International Life Bldg., St. Louis, Missouri, and

An application for Pistons, filed by Howard E. Maynard, of 700 Calvert Ave., Detroit, Michigan, whose attorney is Whittemore, Hulbert & Whittemore, of Penobscot Bldg., Detroit, Michigan.

The relation of the count of the interference to the claims of the respective parties is as follows:

Count	Day	Gulick	Jardine	Long	Maynard
1	12	12	14	11	10.

P. P. PIERCE,

Examiner, Div. 12.

V. I. C.

204661—79

2-079

INTERFERENCE.

"I" (9)

Paper No. 32

Interference No. 49577

Name, Edward J. Gulick

Serial No. 204,661

Title, PISTONS

Filed, Nov. 30, 1917

Interference with E. C. Long; H. E. Maynard; F. Jardine and R. E. Day.

DECISIONS OF

Primary Examiner,
Ex'r of Interferences,
Board,
Commissioner,Dated,
Dated,
Dated,
Dated,

REMARKS:

.....
.....
This should be placed in each application or patent involved in interference in addition to the interference letters by Primary Examiner.

204661-80

2-213

Forwarded from 12 Div. to
Examiner of Interferences.
June 15, 1923

Paper No. 33
[INTERFERENCE]
"I" (9)

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE
Washington, D. C.

Copy sent assignee
Milton Tibbetts,
c/o Packard Motor Car Company,
Detroit, Michigan.

(Mailed U. S. Patent Office Jul 7 1923)

Please find below a copy of a communication from
the Examiner concerning the application of Edward J.
Gulick, Filed Nov. 30, 1917, Serial No. 204,661, PISTONS.

Very respectfully,

THOMAS E. ROBERTSON,
Commissioner of Patents.

Room No. 322
Address only

The Commissioner of Patents
Washington, D. C.

49577

The case, above referred to, is adjudged to interfere with others, hereafter specified, and the question of priority will be determined in conformity with the Rules.

The statement demanded by Rule 110 must be sealed up and filed on or before Aug. 27, 1923, with the subject of the invention, and name of party filing it, indorsed on the envelope. The subject-matter involved in the interference is

Count.

1. A piston comprising a head portion, a skirt portion, two separated pin bosses, connecting flanges in the zone of the bosses and extending from the bosses to the skirt on both sides of the bosses, connecting means from each of the bosses to the head portion, the skirt portion being entirely separated from the head portion

except through the boss connections, and the skirt portion being split longitudinally of the piston to permit free expansion and contraction.

This interference involves your application above identified and an application for PISTONS, filed by Ray E. Day, of 3825 North 24th St., Tacoma, Wash., whose attorney is Clarence E. Mehlhope, of Marquette Bldg., Chicago, Ill.,

An application for PISTONS, filed by Frank Jardine, of c/o The Aluminum Castings Company, Cleveland, Ohio, whose attorney is B. D. Watts, of 451 Lennox Bldg., East 9th & Euclid Ave., Cleveland, Ohio, and whose assignee is the Aluminum Manufactures, Inc., of Cleveland, Ohio,

An application for PISTONS, filed by Howard E. May-

204661—81

204,661—2

nard, of 700 Calvert Ave., Detroit, Mich., and whose attorney is Whittemore, Hulbert & Whittemore, of Penobscot Bldg., Detroit, Mich., and

An application for INTERNAL COMBUSTION ENGINE PISTONS, filed by Elmer C. Long, of 1037 Main St., Quincy, Ill., and whose attorney is Herbert G. Fletcher, of 321 International Life Bldg., c/o Knight Bros., St. Louis, Mo.

The relation of the count of the interference to the claims of the respective parties is as follows:

Count	Day	Gulick	Jardine	Long	Maynard
1	11	11	13	9	9

P. P. PIERCE,

Examiner, Div. 13.

V. I. C.

204661—82

1910

Defendants' Exhibit 4-L, File Wrapper

2-079

INTERFERENCE.

"L" 12

Interference No. 49580

Paper No. 34

Name, Edward J. Gulick

Serial No. 204,661

Title, Pistons

Filed, Nov. 30, 1917

Interference with S. D. Hartog; E. C. Long; G. A. Taylor

DECISIONS OF

Primary Law Examiner, Interference

dissolved

Dated, Apr 4 1924

Ex'r of Interferences,

Dated,

Board,

Dated,

Commissioner,

Dated,

REMARKS:

.....
.....
This should be placed in each application or patent involved in interference in addition to the interference letters by Primary Examiner.

204661-83

2-213

(U. S. Patent Office Jul 7 1923 Mailed)

Forwarded from 12 Div. to

Paper No. 35

Examiner of Interferences.

[Interference.]

June 15, 1923

"L"

DEPARTMENT OF THE INTERIOR

UNITED STATES PATENT OFFICE

Washington, D. C.

Milton Tibbetts,

c/o Packard Motor Car Company,

Detroit, Michigan

Please find below a copy of a communication from the Examiner concerning the application of Edward J. Gulick, Filed Nov. 30, 1917, Serial No. 204,661, Pistons.

Very respectfully,

THOMAS E. ROBERTSON.

Room No. 322

Address only

The Commissioner of Patents
Washington, D. C.

49580

The case, above referred to, is adjudged to interfere with others, hereafter specified, and the question of priority will be determined in conformity with the Rules.

The statement demanded by Rule 110 must be sealed up and filed on or before Aug. 27 1923, with the subject of the invention, and name of party filing it, indorsed on the envelope. The subject-matter involved in the interference is

Count.

1. A piston comprising a head, a skirt separated at its periphery from the head, and pin bosses integrally connected to the head and to the upper and lower part of the skirt, the outer ends of the pin bosses being spaced from the opposing parts of the skirt wall and said skirt having openings opposite the open ends of the bosses.

This interference involves your application above identified and an application for Pistons, filed by George A. Taylor, of 164 Dana Ave., Hyde Park, Mass., and whose attorney is Macleod, Calver, Copeland & Dike, of Tremont Bldg., Boston, Mass.,

An application for Piston for an Internal Combustion Motor, filed by Elmer C. Long, of 4834 Beaubien St., Detroit, Mich., whose attorney is Herbert G. Fletcher, of 1111 International Life Bldg., St. Louis, Mo., and

An application for Pistons, filed by Stephen D. Hartog, of 3219 Natural Bridge Ave., St. Louis, Mo., and whose attorney is Rippey and Kingland, of The Rialto Bldg., St. Louis, Mo.

204661—84

204,661—2

The relation of the count of the interference to the claims of the respective parties is as follows:

Count	Gulick	Hartog	Long	Taylor
1	2	29	11	11

P. P. PIERCE,

Examiner, Div. 12.

V.L.C.

204661—85

2-079

INTERFERENCE.

Interference No. 49587
 Name, Edward J. Gulick
 Serial No. 204,661
 Title, Pistons
 Filed, Nov. 30, 1917
 Interference with Stephen D. Hartog

"S" 19
 Paper No. 36

DECISIONS OF

Primary Examiner,
 Ex'r of Interferences, Favorable
 Board,
 Commissioner,

Dated,
 Dated, Apr. 8/24
 Dated,
 Dated,

REMARKS:

.....

 This should be placed in each application or patent involved in interference in addition to the interference letters.

204,661-86

(U. S. Patent Office Jul 7 1923 Mailed)

Forwarded from 12 Div to
 Examiner of Interferences.
 June 15, 1923

Paper No. 37
 [INTERFERENCE.]
 "S"

Ch-D

Copy sent Assignee.

DEPARTMENT OF THE INTERIOR,
 UNITED STATES PATENT OFFICE
 WASHINGTON, D. C.

Milton Tibbetts,
 c/o Packard Motor Car Co.,
 Detroit, Michigan.

Please find below a copy of a communication from the Examiner concerning the application of Edward J. Gulick, Filed Nov. 30, 1917, Serial No. 204,661, PISTONS.

Very respectfully,

THOMAS E. ROBERTSON,
 Commissioner of Patents.

Address only
The Commissioner of Patents
Washington, D. C.

49587

The case, above referred to, is adjudged to interfere with others, hereafter specified, and the question of priority will be determined in conformity with the Rules.

The statement demanded by Rule 110 must be sealed up and filed on or before Aug. 27, 1923, with the subject of the invention, and name of party filing it, indorsed on the envelope. The subject-matter involved in the interference is

Count.

1. In a piston, the combination of a head portion having an end wall and a side wall, a guide portion, a pair of separated piston pin bosses connected to the head portion, and webs disposed longitudinally of the piston integrally joining the inner parts of said bosses to the guide portion in the zone of said bosses.

This interference involves your application above identified and an application for PISTONS, filed by Stephen D. Hartog, of 3219 Natural Bridge Ave., St. Louis, Missouri, and whose attorney is Rippey and Kingsland, of The Rialto Bldg., St. Louis, Mo.

The relation of the count of the interference to the claims of the respective parties is as follows:

COUNT	GULICK	HARTOG
1	23	31.

P. P. PIERCE,
Examiner, Div. 12.

V.I.C.

204661-87

2-079

INTERFERENCE.

"T" 20

Paper No. 38

Interference No. 49588
 Name, Edward J. Gulick
 Serial No. 204,661
 Title, **PISTONS**
 Filed, Nov. 30, 1917

Interference with Elmer C. Long, Pat. No. 1,395,441,
 dated Nov. 1, 1921.

DECISIONS OF

Primary Examiner,	Dated,
Ex'r of Interferences,	Dated,
Board,	Dated,
Commissioner,	Dated,

REMARKS:

.....

 This should be placed in each application or patent
 involved in interference in addition to the interference
 letters by Primary Examiner.

204661-88

(U. S. Patent Office Jul 7 1923 Mailed)

Forwarded from 12 Div. to
 Examiner of Interferences,
 June 15, 1923
 Ch-D

Paper No. 39
 [Interference.]
 "T"

DEPARTMENT OF THE INTERIOR,
 UNITED STATES PATENT OFFICE,
 WASHINGTON, D. C.

Copy sent assignee.

Milton Tibbetts,
 c/o Packard Motor Car Company,
 Detroit, Michigan.

Please find below a copy of a communication from
 the Examiner concerning the application of Edward J.
 Gulick, Filed Nov. 30, 1917, Serial No. 204,661, **PISTONS**

Very respectfully,

THOMAS E. ROBERTSON,
 Commissioner of Patents.

Room No. 322

Address only
The Commissioner of Patents
Washington, D. C.

49588

The case, above referred to, is adjudged to interfere with others, hereafter specified, and the question of priority will be determined in conformity with the Rules.

The statement demanded by Rule 110 must be sealed up and filed on or before Aug 27 1923, with the subject of the invention, and name of party filing it, indorsed on the envelope. The subject-matter involved in the interference is

Count.

1. A one piece piston provided with a solid end portion and a skirt portion, said skirt portion having a longitudinally extending slot formed through the thickness of its wall, said slot extending from the rear edge of the skirt portion and forming adjacent disconnected portions in said skirt portion which are capable of being moved inwardly or outwardly without restraint.

This interference involves your application above identified and patent No. 1,395,441, Dated Nov. 1, 1921, application filed Dec. 9, 1918, Serial No. 265,947, by Elmer C. Long, of 1037 Main St., Quincy, Illinois, and whose attorney is Herbert G. Fletcher, of 321 International Life Bldg., St. Louis, Missouri.

The relation of the count of the interference to the claims of the respective parties is as follows:

COUNT	GULICK	LONG
1	29	10.

P. P. PIERCE,

Examiner, Div. 12.

V.I.C.

204661-89

204,661—40

(Docket Division Jun 29 1923 U. S. Patent Office)
IN THE UNITED STATES PATENT OFFICE

Edward J. Gulick
Pistons
Filed November 30, 1917

Room No. 322
Division No. 12
Serial No. 204,661

POWER OF ATTORNEY

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

Please recognize Messrs. Watson, Coit, Morse & Grindle, consisting of James A. Watson, John M. Coit, Robert W. Morse, and Chas. S. Grindle, and R. C. Watson, (Registration No. 11,307) of Washington, D. C., as associate attorneys in this application, but with the understanding that the Patent Office will carry on its correspondence with me as in the past.

MILTON TIBBETTS,

Attorney for Gulick.

(U. S. I. R. Documentary Stamp, 25 Cents.)

Detroit, Michigan
June 18, 1923
M.T:TS

49569
to
49592
204661—90

(U. S. Patent Office Dec 3 1923 Mailed)

Div. 12 Room 322

Paper No. 41

Address only

"The Commissioner of Patents,
Washington, D. C."
and not any official by name.

Ch-D

All communications respecting this
application should give the serial number
date of filing, title of invention, and
name of the applicant.

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE
WASHINGTON

Milton Tibbetts,
c/o Packard Motor Car Company,
Detroit, Michigan.

Please find below a communication from the Examiner in charge of the application of Edward J. Gulick, Filed Nov. 30, 1917, Serial No. 204,661 PISTONS

THOMAS E. ROBERTSON,
Commissioner of Patents.

49571

In accordance with the provisions of Rule 129, the application for patent filed by Gustav R. Kelm, whose post-office address is c/o Walker M. Levett Company, 417 East 23rd St., New York, New York, whose attorney is Clarence D. Kerr, of No. 5 Nassau Street, New York, New York, and whose assignee is the Walker M. Levett Company, New York, New York, a corporation of New York, is hereby added to Interference No. 49571, between Day v. Taylor v. Spillman v. Maynard v. Jardine v. Long v. Gulick, to which you are a party. The claim of Kelm's application corresponding to the count of the issue is

Count

Claim

1

7.

The new party only is given until the 31 day of Dec, 1923, within which to file the preliminary statement required by Rule 110.

The issue of the interference remains unchanged.

P. P. PIERCE,

Examiner, Div. 12.

V.L.C.

204661-91

(U. S. Patent Office Dec 3 1923 Mailed)

Div. 12 Room 322

Paper No. 42

Address only

"The Commissioner of Patents,
Washington, D. C."
and not any official by name.

All communications respecting this application should give the serial number date of filing, title of invention, and name of the applicant.

Ch-D

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE
WASHINGTON

Milton Tibbetts,
c/o Packard Motor Car Company,
Detroit, Michigan.

Please find below a communication from the Examiner in charge of the application of Edward J. Gulick, Filed Nov. 30, 1917, Serial No. 204,661 PISTONS

THOMAS E. ROBERTSON,
Commissioner of Patents.

49572

In accordance with the provisions of Rule 129, the application for patent filed by Gustav R. Kelm, whose post-office address is c/o Walker M. Levett Company, 417 East 23rd St., New York, New York, whose attorney is Clarence D. Kerr, of #5 Nassau Street, New York, New York, and whose assignee is the Walker M. Levett Company, of New York, New York, a corporation of New York, is hereby added to Interference No. 49572, between Taylor v. Spillman v. Maynard v. Jardine, v. Hartog v. Long v. Gulick, to which you are a party. The claim of Kelm's application corresponding to the count of the issue is:

Count	Claim
1	8.

The new party only is given until the 31 day of Dec, 1923, within which to file the preliminary statement required by Rule 110.

The issue of the interference remains unchanged.

P. P. PIERCE,
Examiner, Div. 12.

V.I.C.

204661-92

204,661-43

(Mail Room Mar 3 1924 U. S. Patent Office)
(Docket Division Mar 4 1924 U. S. Patent Office)
IN THE UNITED STATES PATENT OFFICE.

In re Application of
EDWARD J. GULICK,
Pistons,
Serial No. 204,661,
Filed November 30th, 1917.

POWER OF ATTORNEY.

The undersigned, The Cleveland Trust Company, a corporation of the State of Ohio, having its place of business in the City of Cleveland, in said State, being (by virtue of an assignment recorded September 18th, 1922, in Liber—S-116, Page 485, of The Transfers of Patents), the Assignee of the entire right, title and interest in and to the above-entitled application and the invention to which it relates, hereby appoints Ray Stewart Gehr, of 1900 Euclid Building, Cleveland, Ohio, its attorney herein, with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to receive the patent, and to transact all business in the Patent Office connected therewith; and it hereby revokes all Powers of Attorney heretofore given herein.

IN WITNESS WHEREOF, the said The Cleveland Trust Company, has caused its corporate seal to be hereto affixed, and these presents to be signed and executed in its name and behalf by its duly authorized officers, this 29th day of February, 1924.

THE CLEVELAND TRUST COMPANY.

By C. W. STANSBURY,

Vice President.

(Corporate Seal)

Accepted

Approved and executed by The C. T. Co.

DEM

Asst. Counsel.

Attest:

A. J. PERFLER,

Ass't Trust Officer.

Mar 10 1924

T. E. ROBERTSON,

Commissioner.

(U. S. I. R. Documentary Stamp, 25 Cents.)

204661—93

1920

Defendants' Exhibit 4-L, File Wrapper

(Docket Division Mar 4-1924 U. S. Patent Office)
(Mail Room Mar 3 1924 U. S. Patent Office)

Patents and
Patent Causes

Intf June 15/23
Telephone:
Prospect 2273

RAY STEWART GEHR
COUNSELLOR AT LAW
1900 Euclid Avenue
CLEVELAND

February 29th, 1924.

The Commissioner of Patents,
Washington, D. C.

Sir:—

I am enclosing herewith for filing power of attorney in the application of Edward J. Gulick, Serial No. 204,661. This application is now involved in interference proceedings.

Respectfully yours,

RAY S. GEHR.

Enc.
RSG/S

204661-94

EEG

#44
23

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE
Washington

March 11, 1924

YOUR POWER OF ATTORNEY HAS BEEN ACCEPTED in the matter of the application of Edward J. Gulick for Letters Patent for an IMPROVEMENT IN Pistons No. 204,661. Filed Nov. 30, 1917.

Respectfully,

THOMAS E. ROBERTSON,
Commissioner.

Ray S. Gehr,
1900 Euclid Bldg.,
Cleveland, Ohio.

204661-95

EEG

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE
Washington

March 11, 1924

YOUR POWER OF ATTORNEY HAS BEEN REVOKED by assignee in the matter of the application of Edward J. Gulick for Letters Patent for an IMPROVEMENT IN Pistons No. 204,661 Filed Nov. 30, 1917.

Respectfully,

THOMAS E. ROBERTSON,
Commissioner.

Watson, Colt, Morse & Grindle (Assoc.)
Washington, D. C.

Milton Tibbetts,
c/o Packard Motor Car Co.,
Detroit, Mich.

204661-96

(Application Div. Dec 11 1926 U. S. Patent Office)

(Docket Division Dec 11 1926 U. S. Patent Office)

204,661-45

IN THE UNITED STATES PATENT OFFICE

In the matter of
Application
Serial No. 204,661
Edward J. Gulick
Filed November 30, 1917
For Piston

POWER TO INSPECT AND MAKE COPIES

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

Please permit Wm. L. Symons, Esq., of Washington, D. C. to inspect the above entitled application and to have a copy or copies made thereof, or any part thereof.

Respectfully,

RAY S. GEHR,
Attorney for Gulick.

Cleveland, Ohio,
December 9, 1926

204661-97

(Mail Division Jul 20 1928 U. S. Patent Office)
(Docket Division Jul 20, 1928 U. S. Patent Office)

IN THE UNITED STATES PATENT OFFICE

U. S. Patent Office
Jul 23 1928
Division 12, Paper No. 46
Doc
Div.-12.

In the matter of
the application of
Edward J. Gulick,
For Pistons,
Filed November 30, 1917,
Serial No. 204,661.

WITHDRAWAL.

The Commissioner of Patents,
Washington, D. C.

Sir:

Having on or about February 29, 1924, been appointed the attorney in the above entitled application of the Cleveland Trust Company, assignee of the entire interest of the applicant, I now hereby withdraw from the case as attorney of the said assignee.

Respectfully yours,

RAY S. GEHR.

Cleveland, Ohio,
July 18, 1928.

D

L H G

T B

49,569

49,570

Ed. July 26/28

204661-98

(Mail Division Aug-3 1928 U. S. Patent Office)
(Docket Division Aug 3 1928 U. S. Patent Office)

EVANS & McCOY
PATENT LAWYERS
Bulkley Building
CLEVELAND

Lloyd L. Evans
William C. McCoy
Arnold C. Rood
Frank S. Greene

Telephone
Main 0470

July 31, 1928.

Doc

Commissioner of Patents,
Washington, D. C.

Sir:

Please file the enclosed Power of Attorney in the
Application of
Edward J. Gulick
Serial No. 204,666

now involved in the following interferences:

Hartog v. Long v. Gulick	No. 49,569
Long v. Hartog v. Gulick	No. 49,570
Long v. Gulick	No. 49,571

Yours respectfully,

EVANS & MCCOY.

WCM:LR
Encl.

204661-99

(Mail Division Aug-3 1928 U. S. Patent Office)
(Docket Division Aug 3 1928 U. S. Patent Office)

#47

IN THE UNITED STATES PATENT OFFICE

In re Application of
EDWARD J. GULICK,
Pistons,
Serial No. 204,661,
Filed November 30th, 1917.

POWER OF ATTORNEY

The undersigned, The Cleveland Trust Company, a corporation of the State of Ohio, having its place of business in the City of Cleveland, in said State, being (by virtue of an assignment recorded September 18th, 1922, in Liber S-116, Page—485, of The Transfers of Patents), The Assignee of the entire right, title and interest in and to the above-entitled application and the invention to which it relates, hereby appoints EVANS & McCoy, of 724 Bulkley Building, Cleveland, Ohio, its attorneys herein, with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to receive the patent, and to transact all business in the Patent Office connected therewith;

IN WITNESS WHEREOF, the said The Cleveland Trust Company, has caused its corporate seal to be hereto affixed, and these presents to be signed and executed in its name and behalf by its duly authorized officers, this 19th day of July, 1923.

THE CLEVELAND TRUST COMPANY.

By H. H. ALLYN,

Vice President.

(Corporate Seal)

Attest:

A. J. PERFLER,

Assistant Trust Officer.

Approved for Execution by The C. T. Co.

R. T. S., Counsel.

204661—100

204661-48

(Docket Division Sep 12 1929 U. S. Patent Office)

IN THE UNITED STATES PATENT OFFICE

Application of
Edward J. Gulick,
Serial No. 204,661,
Filed November 30, 1927,
For PISTONS

Hon. Commissioner of Patents,
Washington, D. C.

POWER TO INSPECT

Sir:

Please permit William L. Symons, of 700 Tenth Street, Washington, D. C., or his duly accredited agent, to inspect and make copies of the papers in the above entitled application.

Respectfully submitted,

EVANS & MCCOY,

Attorneys.

Cleveland, Ohio
September 10th, 1929

204661-101

(Mail Room Apr-4 1931 U. S. Patent Office)

(U. S. Patent Office Apr 7 1931 Division 12, Paper No. 49)

IN THE UNITED STATES PATENT OFFICE

6

Application of
Edward J. Gulick,
Serial No. 204,661
Filed Nov. 30, 1917,
For—Pistons
Division 12.

Account

Hon. Commissioner of Patents,
Washington, D. C.

LETTER TO OFFICIAL DRAFTSMAN

Sir:

In the matter of the above entitled application and subject to the approval of the Examiner, kindly correct

1926

Defendants' Exhibit 4-L, File Wrapper

Figures 2 and 3 of the drawing, as indicated in red ink on the attached photostat of the drawing.

Please charge the cost of this work to the account of Evans & McCoy.

Respectfully submitted,

EDWARD J. GULICK

By EVANS & MCCOY.

a

Int 49569

74 (4)

108

Cleveland, Ohio

April 3, 1931

DBW/LR

Div. C.

(Received in Div. C Apr 11 1931)

(Correction Ordered Apr 11 1931 ... Account)

(Corrected Apr 11 1931)

WEB

Approved Apr 6 1931

C. C. HENRY,

Examiner, Div. 12.

O.K. KWFB

4-9-31.

204661-102

177
179

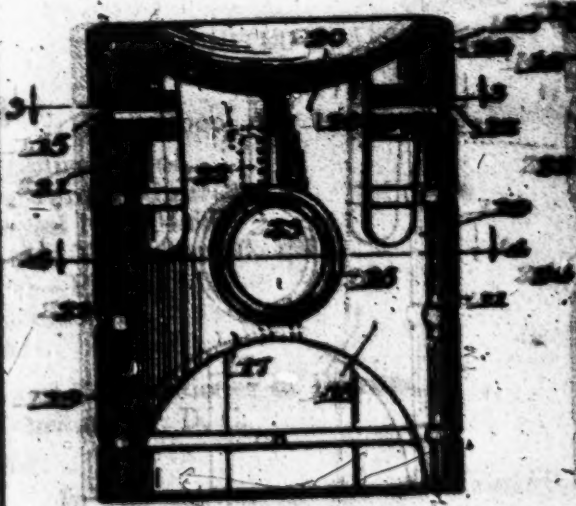


Fig. 1

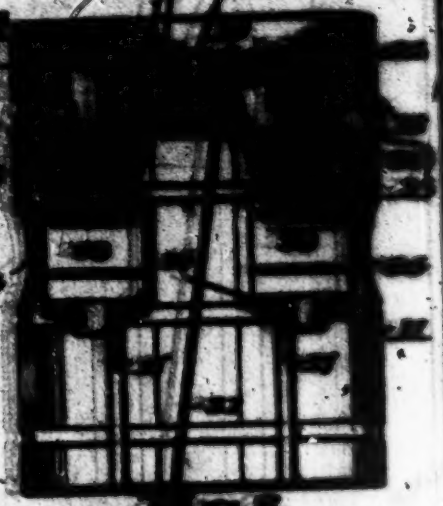


Fig. 2

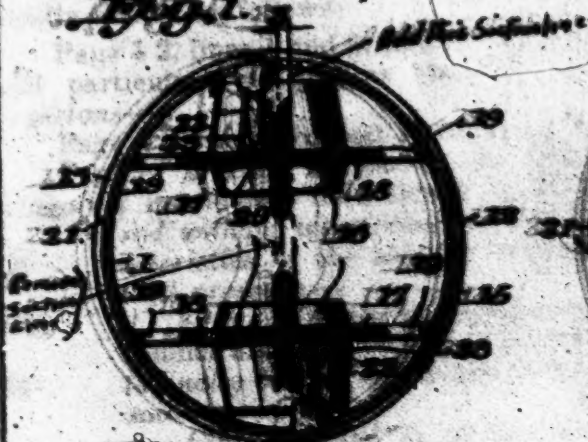


Fig. 3

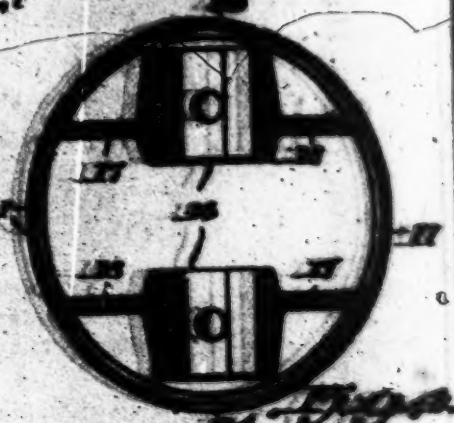


Fig. 4

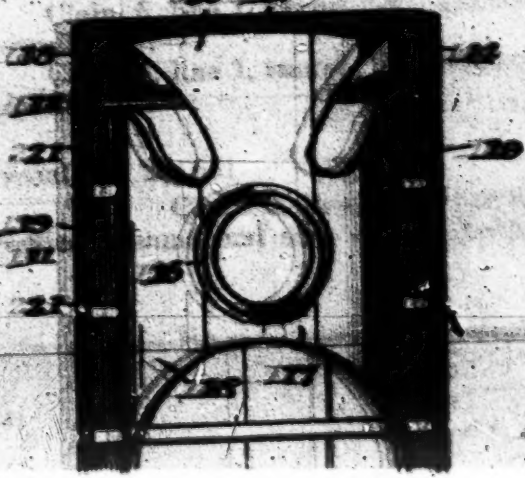


Fig. 6

By Edward T. Galt,
Attorney



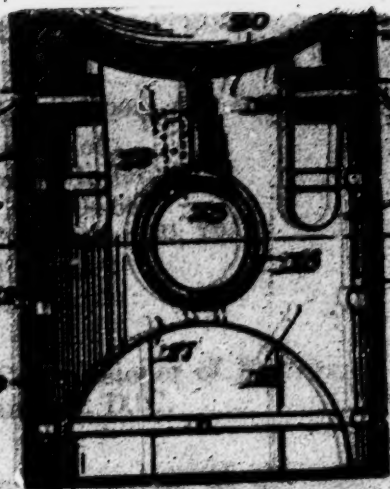


Fig. 1.

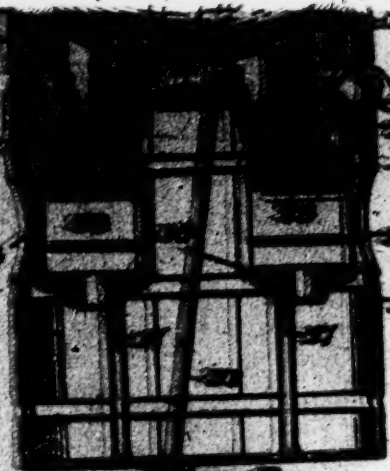


Fig. 2.

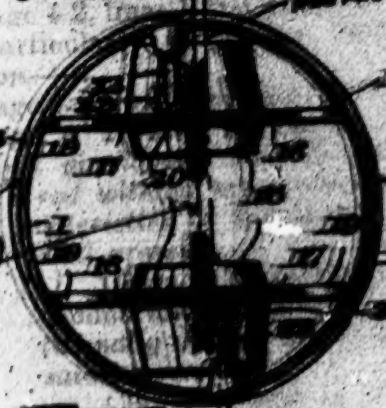


Fig. 3.

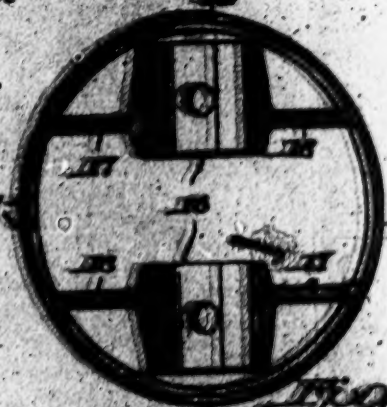


Fig. 4.

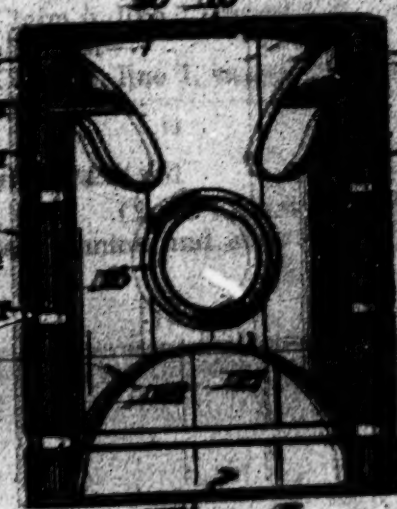


Fig. 5.

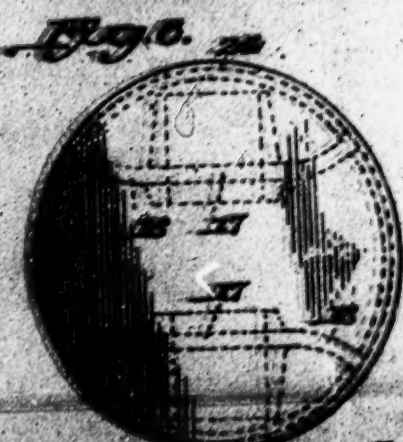


Fig. 6.

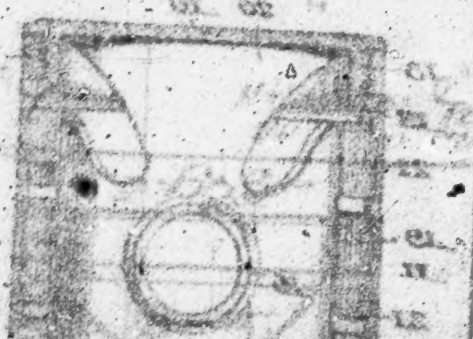
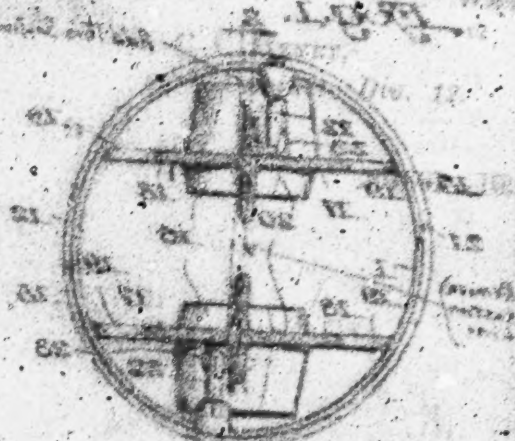
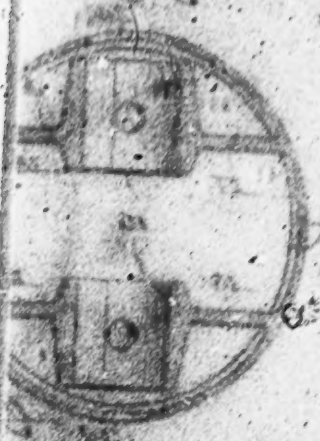
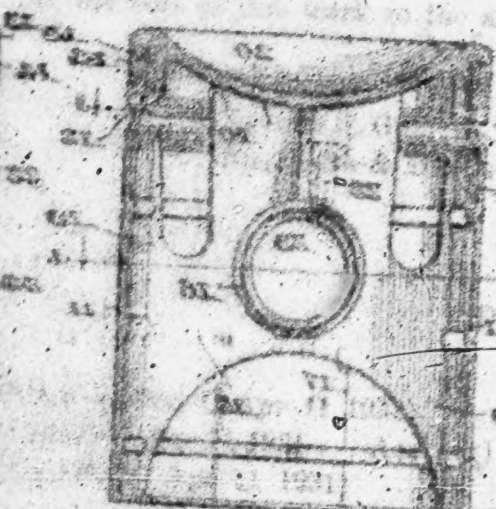
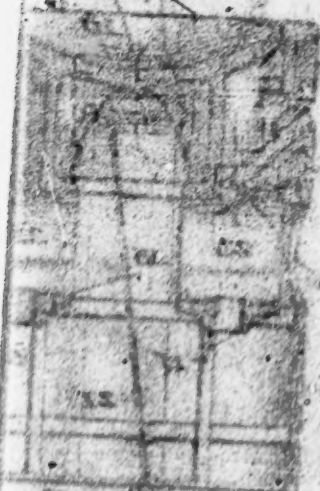
By Edward T. Tilton
 Mich. T. Tilton

Fig. 1

Fig. 2

Fig. 3

Fig. 4



U. S. Patent Office

Apr 7 1931

Division 12, Paper No. 50

IN THE UNITED STATES PATENT OFFICE

12461

(Mail Room Apr 4 1931 U. S. Patent Office)

Application of
Edward J. Gulick,
Serial No. 204,661
Filed November 30, 1917;
For—Pistons
Division 12.

H.

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

In the matter of the above entitled application,
kindly amend as follows:

Page 1 2, lines 1 and 2, cancel "hydrocarbon motors
and particularly to pistons therefor" and substitute
~~pistons—~~;

Page 1 2, line 5, correct the spelling of "seize";

Page 1 2, line 15, cancel the period and add:
~~—against mechanical load thrust from the connecting
rod without interfering with the yielding char-
acteristics of the skirt in response to cylinder
wall pressure.—~~

H¹

OK

H²

Claim 2, at the end, change the period to a
comma and add: ~~—said skirt being split longi-
tudinally on one side between its connections to
said bosses.—~~

H³

Claims 4 and 5, at the end, change the
period to a comma and add: ~~—said skirt being
split longitudinally between its connections to
said bosses.—~~

Claim 5, line 1, cancel "A" and substitute ~~—An in-
tegrally cast—~~;

Claim 6, line 1, cancel "A" and substitute ~~—An in-
tegrally cast—~~;

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Serial No. 204,661

12462

Claim 6, last line, change the period to a
Copied comma and add: ~~—said flanges being yieldable~~

H⁴ in the direction of the piston pin boss axis and relatively rigid in the direction of their length.—

Claim 7, line 2, after "bosses" insert —integral with the head and disposed—. Same line, cancel "means" and substitute —transversely flexible webs—;

Claim 14, line 3, after "having" insert —an annular bearing surface at the open end thereof and—;

Claim 14, last line, before "connections" insert —integral, rigid—;

Claim 16, last line, change the period to a comma and add: —said split in the cylinder-engaging face of said guide portion being disposed between the connections thereto of said walls.—

Claim 17, line 9, cancel "walls" and substitute —transversely flexible walls integrally—;

Claim 17, line 10, before "joined" insert —integrally—;

Claim 17, last line, remove the period and add: —and integral therewith.—

Claim 19, line 8, before "connections" insert —rigid, integral—;

Claim 20, line 5, after "gap" cancel "and" and insert —, spaced supporting connections between said head and guide portions,—;

Claim 20, line 7, after "edge" and before the comma insert —between said supporting connections—;

Claim 20, line 9, before "connected" insert —integrally—;

Claim 21, last line, before the period insert —during operation—;

Cancel claim 25.

Claim 26, line 4, after "portion" insert —connected to said bosses and—;

—2—

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Serial No. 204,661

12463

Claim 26, line 7, after "wall" insert —of the head portion—;

Claim 26, line 8, after "longitudinally" insert —between its connections to said bosses—;

Claim 27, line 6, cancel "and" and substitute —, spaced supporting connections between said head and guide portions,—;

Claim 27, line 7, after "longitudinally" insert —between its supporting connections—;

Claim 28, line 2, after "skirt portion" insert —*supported therefrom by spaced integral connections*—;

Claim 28, at the end of line 3, add —*single*—;

Claim 28, line 4, after "longitudinal slot" insert —*in the skirt between the spaced integral connections and*—;

Claim 28, at the end of line 5, insert —*main*—;

Claim 28, line 6, after "peripheral" insert —*bearing*—;

Claim 28, line 6, after "portions" insert —*in the skirt*—;

Claim 28, at the end of the claim, cancel the period and add: —, *the bearing face of said piston diametrically opposite said longitudinal slot being circumferentially continuous between the spaced integral connections of the skirt to the head on that side of the skirt.*— (X) (E^a contd fols)

Claim 29, line 2, after "skirt portion having" insert —*oppositely disposed thrust bearing faces and*—;

Claim 29, line 4, after "skirt portion" insert —*through one of said thrust bearing faces*—;

Claim 29, line 5, after "disconnected" cancel "portions" and insert —*parts of a thrust bearing face*—;

Claim 33, line 9, after "wall" insert —*between its connections to said supporting means*—;

—3—

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Serial No. 204,661

12464

Cancel claim 18 and substitute therefor the following claim:

—24- 18 A piston for an internal combustion engine cylinder comprising in combination, a head portion having an end wall and a side wall, a guide portion having diametrically opposite cylinder-engaging parts
Per I for receiving thereof designed to receive the side thrust of a connecting rod and arcuate cylinder-engaging parts joining said diametrically opposite parts at the lower end of the guide portion to provide an annular bearing face adjacent the open end of the piston, each of said diametrically opposite cylinder-engaging parts being separated at its upper end from the side wall of the head portion, a pair of separated pin bosses disposed on an axis between said cylinder-engaging parts, a pair of spaced walls, each of which connects one of said bosses to said cylinder-engaging parts at points above and below the plane of the boss axis, one of said diametrically opposite

cylinder-engaging parts being split longitudinally from its upper edge to its lower edge between its connections to said walls, and connections extending from the bosses to the head portion, whereby said piston skirt is rendered yieldable during operation in response to cylinder wall pressure.— (X) E^a Contd fol

—4—

Serial No. 204,661

204661—107

12465

Add the following new claims:

—35. 33 A piston for use in an engine cylinder comprising a head, a skirt, **having parts of said skirt forming oppositely positioned main bearing portions designed to take the side thrust of a connecting rod, a pair of spaced wrist pin bosses, means integrally connecting the bosses to the head, and means integrally connecting each boss to both of said opposite main bearing portions, one main bearing portion being circumferentially continuous between its connections to the bosses and the other main bearing portion being separated from the head and slit longitudinally between its connections to the bosses to render said slit main bearing portion yieldable in response to pressure from the engine cylinder during operation.**

H¹⁰ Per I **36. 34 A piston for use in an engine cylinder comprising a head, a skirt, having parts of said skirt forming oppositely positioned main bearing portions to take the side thrust of a connecting rod, a pair of spaced wrist pin bosses, means integrally connecting the bosses to the head, and means integrally connecting each boss to both of said opposite main bearing portions, one main bearing portion being circumferentially continuous between its connections to the bosses and the other main bearing portion being separated from the head and slit longitudinally its entire length between its connections to the bosses to render said slit main bearing portion yieldable in response to pressure from the engine cylinder during operation.**

—5—

Serial No. 204,661

204661—108

12466

37. 35 A single-piece, integral piston, comprising a head, a pair of spaced wrist pin bosses having a common axis, a skirt, and means yieldingly connecting the skirt to the head, **said skirt being integral**

Per I

and having main cylinder bearing faces disposed on opposite sides of the axis of said wrist pin bosses, said skirt being separated from the head at the upper end of each of said bearing faces, one only of said main cylinder bearing faces being slit longitudinally between its connections to the head, whereby

H¹⁰ contd said head may expand and contract during operation of said piston substantially independently of said skirt portion when expansion of the skirt portion is restrained.

38. 36 A single-piece, integrally cast piston for use in an engine, comprising a head, wrist pin bosses having a common axis, a skirt, and means connecting

Per I said head and bosses and skirt together, said skirt being integral and having a main bearing portion disposed on each side of the said

Per I wrist pin boss axis and arranged designed to take the side thrust produced by the angularity

of the connecting rod of the engine, said piston having a transverse slit through its wall on one side of the boss axis, portions of said skirt on the transversely slit side of the piston also being slit longitudinally between its connections to said bosses to provide a peripheral main bearing portion in the said transversely slit side of said piston that is capable of yielding in response to pressure from the engine cylinder during operation of the piston.

(X)

over

—6—

204661—109

Serial No. 204,661

12467

39. 37 A single-piece, integral piston for operation in an internal combustion engine cylinder, comprising a head, spaced wrist pin bosses, a longitudinally slitted one piece skirt that is yieldable

Per I in response to cylinder wall pressure having cylinder-engaging faces disposed at opposite

Per I sides of the axis of said bosses and arranged designed to yieldingly engage the walls of the

H¹⁰ contd cylinder during operation, said head and skirt being separated at the upper end of each of

said cylinder-engaging faces, and means yieldingly connecting the skirt to said head including means connecting the bosses and the skirt, said means connecting said bosses and said skirt being substantially rigid in the direction transverse to the axis of the bosses, whereby said head portion may expand and contract during oper-

ation of said piston without binding engagement of the skirt with the walls of the cylinder.

40. 38. A single-piece, integrally cast piston for use in an engine, comprising a head, wrist pin bosses having a common axis, a skirt, and means connecting said head and bosses and skirt together, said skirt being integral and having a main bearing portion disposed on each side of the said wrist pin boss axis and arranged designed to take the side thrust produced by the angularity of the connecting rod of the engine, said piston having a transverse slit through its wall on both sides of the boss axis, one only of said main bearing portions being slit longitudinally between its connections to said bosses to provide a peripheral bearing portion therein that is capable of yielding outward and inward movement relative to the head during operation of the piston.

—7—

Serial No. 204,661

204661—110

12468

41. 39. A piston for an engine cylinder comprising a skirt, a head separated from the skirt wall around its entire periphery, said skirt being longitudinally slit to render the skirt wall yieldable on every diameter in response to cylinder wall pressure, wrist pin bosses, and means rigidly connecting said bosses to the head and yieldingly connecting said bosses to the skirt whereby said skirt is yieldable in response to cylinder wall pressure.

42. 40. A piston for an engine cylinder comprising a cylindrical skirt that is longitudinally slit and yieldable on every diameter in response to cylinder wall pressure, a pair of wrist pin bosses having a common axis, said skirt being integral and having a main cylinder bearing portion on each side of the axis of said wrist pin bosses, a head peripherally separated from at least one of said main cylinder-bearing portions, and means connecting the bosses with the skirt, said means being yieldable in the direction of the boss axis and substantially rigid in the direction transverse to said axis, whereby said head may freely expand and contract during operation of the piston when expansion of the skirt is restrained.

43. 41. A piston comprising a head, a pair of spaced wrist pin bosses rigidly carried by the head and having a common axis, a skirt that is separated from the head

on each side of the wrist pin bosses and longitudinally slit between the bosses on one side only of the bosses to render the skirt circumferentially yielding on that side of said bosses and circumferentially non-yielding on the opposite side of said bosses, and means substantially non-yielding in the direction transverse to the boss axis connecting the bosses with the skirt.

over

—8—

204661—111

Serial No. 204,661

12469

44. 42 A piston for an engine cylinder comprising, a head, and an integral guide portion having diametrically opposite cylinder-engaging parts for receiving thereof designed to receive the thrust of a connecting rod during operation, one of said cylinder-engaging parts being rigidly connected to the head in the direction of load thrust from the connecting rod, the opposite cylinder-engaging part being yieldable relative to the head in response to cylinder wall pressure, whereby thermal expansion of said piston will not cause it to seize in the cylinder during operation.—

45. 43 A piston for an internal combustion engine cylinder, comprising a head portion carrying packing means and an integral guide portion integral with the head portion and having diametrically opposite cylinder-engaging parts for receiving thereof designed to receive side thrust from a connecting rod, one of said cylinder-engaging parts being slit longitudinally to render it materially more yielding than the opposite cylinder-engaging part.—

(Sig)

—9—

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Serial No. 204,661

12470

REMARKS

Subject to the consent of the Examiner, applicant has requested correction of the drawings in accordance with the accompanying letter.

The title of the invention has been changed from "Hydrocarbon Motors" to "Pistons", which is believed

to be a more appropriate title for the invention disclosed.

Certain formalities have been corrected in the specification.

The statement of the particular object set out in lines 14 and 15 is misleading, because the rigidity of the connection referred to from the bosses to the skirt walls is in the direction of mechanical load thrust from the connecting rod to the main bearing face of the piston skirt. This statement was interpreted by the courts in Interferences 49,575, 49,569 and 49,570 as meaning rigidity in the direction of load thrust on the piston body and not a rigid internal supporting structure that would prevent expansion and contraction of the piston skirt in response to cylinder wall pressure. See *Long v. Gulick* 17 Fed. (2d) 686 and United States Court of Customs and Patent Appeals decisions in Patent Appeal Docket Nos. 2608 and 2609. This amendment is made in accordance with those decisions and to render the statement of the object consistent with the remainder of the specifications and the drawings.

This application contains claims 1 to 44 inc, 19 to 24 inc, and 28 to 45 inc, inclusive. Claims 1, 3 to 13 inclusive, 15, 23, 24 and 29 to 32 inclusive are officially allowed. The status of the remaining claims will be taken up in the consecutive order of their numbering.

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204661—113

Serial No. 204,661.

12471

In considering the question of invention involved in the Gulick disclosure, the patents to Ebbs, Spillman & Mooers, and Derby and Kaiser were taken as representative of the prior art and were particularly discussed in judgments handed down in certain of the interferences. The judgment in Interference No. 49,573 handed down by the Law Examiner on April 4, 1924, involving claim 1 of Gulick as the issue, reads in part as follows:

"The patent to Derby et al does not meet the count because the skirt formed by section 10 is not slit at one side between its connection to the pin bosses, on side members 2 of the frames, Fig. 6. As shown in Fig. 5, the split at the upper and lower sides of the skirt comes directly opposite the connection to and is not between the connection to the bosses.

The Spillman patent lacks the split in the skirt 2 and the pin bosses 12 are not connected to the upper part of the skirt. If it is conceded that there is no invention broadly in splitting the skirt of the Spillman piston after the disclosure in the Ebbs and Derby patents, which seems reasonable, the Spillman patent still falls short of anticipating the count. The idea of connecting the pin bosses of Spillman to the upper part of the skirt is not clearly suggested by Derby et al or Ebbs.

The Ebbs patent does not show pin bosses connected to the upper and lower parts of skirt f. The count calls for a plurality of pin bosses and the connections of the pin bosses to the skirt are separated since the split lies between them. The crosshead would not be the full equivalent of a pair of pin bosses in the relation defined in the count. If the crosshead c is considered the equivalent of a plurality of pin bosses, the crosshead c is connected to the central portions of the entire skirt f and not to the upper and lower parts of the skirt. The tubular bushing in crosshead c is not considered to be a pin boss, or the equivalent of a plurality of pin bosses."

The Law Examiner's decision of April 4, 1924 in Interference No. 49,576, involving Gulick claim 12 as the issue, reads in part as follows:

"The first missing limitation would require connecting flanges between the pin bosses 12 and the skirt 2 of the patent substantially above the connections shown in Figures 2 and 3 and in a zone or circumferential belt which would include the bosses. This is a material limitation having a useful function.

—11—

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Serial No. 204,661.

12472

The second missing limitation is not new in itself since the Ebbs patent shows a longitudinal split in the skirt, but in cooperation with other elements not found in the Ebbs patent, it is a part of a new combination. It is noted that the claim was allowed to Gulick by the primary examiner after consideration of both patents cited.

The count is not satisfactorily anticipated by either reference or any reasonable combination of the references."

The following prior art has been specifically considered in connection with this application:

Ebbs	Patent No. 700,309	74-108-9	Dated May	20, 1902
Stadel	753,527	74-108-2	March	1, 1904
Mareil	920,165	74-108-4	March	4, 1909
Nichols	953,389	74-108-2	March	29, 1910
Van Bever	1,031,212	74-108-9	July	2, 1912
Derby & Kaiser	1,053,790	74-108-9	Feb.	18, 1913
Knight	1,061,756	74-108-9	May	13, 1913
Spillman et al.	1,092,870	74-108-9	April	14, 1914
Barthel	1,139,396	74-108-10	May	11, 1915
Ayers	1,147,915	74-108-11	July	27, 1915
Franquist	1,153,902	74-108-9	Sept.	21, 1915
Vincent	1,279,184	74-108-9	Sept.	17, 1918
French Patent to Chenard & Walcker	No. 468,595	74-108-10	Dated July	19, 1914
British Patent to Birmingham	No. 21,435	" " 6	" Sept.	15, 1910
British Patent to Rainforth	No. 6,826	" " 9	" June	20, 1912
British Patent to Thomas	No. 1,471	" " 11	" June	13, 1914

Gulick proved reduction to practice of his invention in 1914. See, for instance, the decision handed down on June 3, 1929 by the Board of Appeals in Interference No. 49,571 wherein it was held that:

"We also concur in the opinion of the Examiner of Interferences that Gulick proved reduction to practice in 1914."

The following patents are not references against Gulick in view of his filing date and date of reduction to practice in 1914, as determined in these interferences. They are listed here for convenience and to show that they have been considered. They are as follows:

—12—

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Serial No. 204,661.

12473

	Patent No.	Filed	Granted	
Schoengarth	1,174,092	Oct. 1, 1915	March 7, 1916	74-108-9
Haas	1,229,258	Apr. 1, 1915	June 12, 1917	" " 11
Ricardo	1,294,833	Apr. 23, 1918	Feb. 18, 1919	" " 9
Spillman	1,325,176	Feb. 12, 1919	Dec. 16, 1919	" " 8
Br. to Ricardo	17,953		Dec. 23, 1915	" " 9
Fr. to Panhard	480,650		Aug. 31, 1916	" " 9

Claim 2 has been amended to include the limitation that the skirt is split longitudinally between its connections to the wrist pin bosses. The combination now recited in the claim was decided to involve patentable novelty by the Law Examiner in his consideration of claim 1 in Interference No. 49,573, that is quoted above.

Since new function results from the combination of elements now recited, the claim should be allowed.

Allowed claims 4 and 5 have been amended to complete the combination of elements recited in the claim and to bring these claims into harmony with the Law Examiner's decisions with respect to claims 1 and 2.

Allowed claims 6 and 7 have been amended to specify that the flanges extending laterally from the boss are yieldable in the direction of the wrist pin axis and relatively rigid in the direction of their length.

Claims 14 to 22 inclusive were objected to on the ground that the skirt of the Gulick piston was not *divided* into "parts, sections or portions." (Examiner's letter of Oct. 6, 1922.) An explanation of the fact that internal combustion engine pistons have well defined thrust faces on opposite sides of the piston body and that the claims did not specify the actual dividing or separation of the piston skirt along these lines, apparently satisfied the Examiner, because he declared the interferences involving claims 15 and 32, wherein the same limitation appears. Moreover, the Court of Customs and Patent Appeals considered this limitation in claim 32 in Interference No. 49,569, Patent Appeal No. 2608. The Court said:

—13—

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Serial No. 204,661.

12474

"It is first contended by Hartog that Gulick's guide structure does not meet the term "comprising diametrically opposite cylinder engaging parts." In this we think appellant is in error since the combination in Gulick certainly has cylinder engaging parts which are diametrically opposite to each other—that is to say, there are parts of the skirt of the piston which engage the cylinder and which are opposite each other. Hartog argues that, since Gulick has but one slit, there is, therefore, but one cylinder engaging *part* in Gulick's disclosure."

These claims 14 and 16 to 22, inclusive, were not rejected on references and are believed to be clearly allowable as originally presented. Certain of these claims have been amended to add limitations thereto.

Claim 14 as now presented, also includes an annular bearing surface at the open end of the skirt, and integral rigid connections from the bosses to the piston head.

Claim 16 has also been amended to specify that the longitudinal split in the piston skirt is located between the connections thereto of the walls joining the bosses and the skirt.

Claim 17 has been amended to specify that the connections from the guide portions of the bosses are transversely flexible, which alone distinguishes from the prior art as to the yielding characteristics of these connections.

Claim 18 has been rewritten as claim 34 in order to improve its form, and to further define the position of the longitudinal split as positioned between the connections of the skirt to the bosses. The elements of the claim have been re-arranged to improve its form.

Claims 20 and 21 have been amended to specify that the longitudinal split in the skirt wall is disposed between the spaced supporting connections for the skirt.

—14—

204661—117

Serial No. 204,661

12475

Claim 25 has been cancelled without prejudice because the same general subject matter is covered in other allowed claims and claim 25 appears unnecessary to full commercial protection of the invention.

Claims 26 and 27 have been further amended to define the location of the longitudinal split in the skirt as disposed between the connections of the bosses to the skirt. This is allowable subject matter, as indicated in the Law Examiner's decision. ?

Claim 28 is more detailed than claim 29, that was involved in Interference No. 49,588 and should be allowed. This claim also specifies a single longitudinal slot in the skirt between the connections to the head. It also specifies that the opposite side of the piston skirt is circumferentially continuous between the connections to the head. The side thrust from the connecting rod is very great during the power stroke of the piston and this construction provides a continuous bearing face for receiving this thrust. The longitudinally slit side of the skirt renders the skirt yielding in response to cylinder wall pressure on the main bearing face of the piston that receives the angular thrust from the connecting rod on the compression stroke. This thrust is much smaller than the thrust during the power stroke and therefore the slit skirt wall is capable of receiving it without danger of undue yielding or collapse. These are all important limitations not found in the prior art that give rise to new functional results.

Claim 33 has been amended to define the location of the longitudinal split as disposed between the connections from the bosses to the skirt and is clearly allowable in accordance with the previously quoted decision of the Law Examiner in connection with claim 1.

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Newly presented claims 35 to 44 45 are more restricted than certain of the previously allowed claims, and are presented in order to obtain more detailed protection on certain elements of the invention.

Claim 35 is limited to a piston in which one of the main bearing portions of the skirt is circumferentially continuous between the supporting connections to the bosses, whereas the other main bearing face is longitudinally split between its connections to the bosses. The improved functioning of the piston is also stated in the claim. This clearly distinguishes from the art and from previously proposed claims. This also applies to claim 36, wherein the split is defined as extending the entire length of the skirt.

Claim 37 specifies a yielding connection between the skirt and the piston head. The claim also specifies that only one side of the skirt is split its entire length between its connections to the head. This claim is more detailed than allowed claim 30 that was involved in Interference No. 49,570 and is believed to be clearly allowable.

Claim 38 specifies that the longitudinal split in the piston skirt is positioned in one of the main bearing faces to thereby render the skirt resiliently yieldable in response to pressure from the cylinder wall during operation. This is believed to distinguish essentially from the prior art. The longitudinal split in the skirt of the Ebbs piston is in the plane of the wrist pin axis and not in a main bearing face. Furthermore, the Ebbs piston could not be cut through its skirt in a main bearing face because the boss structure of the piston extends completely across the piston on this diameter. The Ebbs piston, furthermore, could not be split as to render it resiliently yieldable in response to cylinder wall pressure.

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Claim 39 specifies that the skirt of the piston is yieldable in response to cylinder wall pressure and yieldingly engages the cylinder wall during operation. This

claim further specifies a yielding connection between the skirt and the head of the piston that permits yielding of the skirt in response to cylinder wall pressure. This claim also specifies a connection between the wrist pin bosses and the skirt that is rigid in the direction transverse to the wrist pin, which is in the direction of side thrust from the connecting rod. These limitations distinguish in these important particulars from all of the prior art.

Claim 40 specifies that only one of the main bearing portions of the piston skirt is slit longitudinally between its connections to the bosses and that both sides of the skirt have the transverse slits separating the head from the skirt. This claim is more detailed than claim 1 in certain particulars, but it does not specify that the skirt is separated from the head around its entire periphery in order to cover certain of the constructions reduced to practice by Gulick during his development of the general invention. This claim also specifies that the longitudinal slit in the skirt is in one of the main bearing faces and that only one main bearing face is slit.

Claim 41 specifies that the skirt wall is separated from the head around its entire periphery, that it is longitudinally slit to render the skirt wall yieldable on every diameter, and means rigidly connecting the bosses to the head and yieldingly connecting the bosses to the skirt. This same group of distinguishing limitations do not appear in other claims submitted and they essentially distinguish from the references. Ebbs is not

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yieldable over the diameter parallel with the boss axis or in response to cylinder wall pressure. The Franquist skirt wall is not yieldable along the boss axis and the skirt wall is not slit as required by the claim.

Claim 42 specifies that the connection from the bosses to the skirt is yieldable along the boss axis and rigid transversely of the axis. This claim also specifies that the skirt is longitudinally slit and separated from the head on at least one side and is yieldable on every diameter. These limitations distinguish from the prior art patents.

Claim 43 specifies that the skirt is longitudinally slit between the bosses and separated from the head. This claim further specifies that the cylinder-engaging wall on one side of the bosses is non-yielding circumferen-

tially, whereas on the other side of the skirt it is longitudinally slit. The connection of the bosses to the skirt are further described as non-yielding in the direction transverse to the bosses. These distinctive elements are not found in any of the prior art disclosures and the combination specified in the claim distinguishes from the other claims submitted.

Claim 44 specifies that the cylinder-engaging part of the piston on one side is rigidly connected to the head in the direction of load thrust and that the opposite cylinder-engaging part is *yieldable* relative to the head in response to cylinder wall pressure. This combination is not shown in any of the prior art considered. Ebbs is rigid and non-yielding on both thrust faces of the piston, so that neither face yields in response to cylinder wall pressure. Franquist is yieldable on each bearing face, so that neither can be construed as rigidly connected to the head. In piston construction it is essential that the load thrust, which is very great, be transmitted from the head to a bearing face of the piston without yielding of the piston structure, which would cause the

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axis of the piston to swing out of line with the axis of the cylinder. Gulick recognized this and split only one side of the piston. The cylinder bearing part of the piston that takes the side thrust during the compression stroke of the connecting rod only carries a fractional part of the load on the opposite thrust face and therefore this face was slit and made to yield by Gulick. Applicant believes that this claim is clearly allowable.

Claim 45 specifies that one of the cylinder-engaging parts of the guide portion which receives the side thrust from the connecting rod is split longitudinally to render it more yielding than the opposite cylinder-engaging part. This combination is not disclosed in any of the prior art patents considered. Franquist is yieldable to the same extent on its opposite thrust faces and Ebbs is non-yielding on its opposite thrust faces. Applicant believes that this claim is clearly allowable.

Each of the claims now presented has been carefully considered and is believed to patentably distinguish from the prior art. The claims also distinguish from

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Defendants' Exhibit 4-L, File Wrapper

each other in important particulars. Allowance of the application as now submitted is respectfully requested.

Respectfully submitted,

EDWARD J. GULICK,

By EVANS & MCCOY,

Attorneys.

Cleveland, Ohio

April 3, 1931

WCM/LR

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(Mailed Apr 24 1931)

Div. 12 Room 380

4-E

Paper No. 51

Address only

"The Commissioner of Patents,
Washington, D. C.,"
and not any official by name

All communications respecting this
application should give the serial number,
date of filing and name of
the applicant

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE

Washington

Please find below a communication from the Examiner in charge of this application.

THOMAS E. ROBERTSON,

Commissioner of Patents.

Evans & McCoy,
724 Bulkley Bldg.,
Cleveland, Ohio.

Applicant: Edward J. Gulick
Ser. No. 204,661
Filed Nov. 30, 1917
For Pistons.

Responsive to the amendment of April 4, 1931.

The following claims remain in this case: 1 to 17, inclusive, 18 to 24, inclusive, and 26 to 45, inclusive.

The following claims may be allowed: 1 to 13, inclusive, 15, 23, 24, 26, 28 to 33, inclusive, and 43.

Claims 14, 16, 17 and 19 to 22, inclusive, together with claims 27, 34 to 40, inclusive, and 42, 44 and 45 are rejected for the reasons specified in the Office action of October 6, 1922 (Paper No. 12). Amplifying the reasons contained in that rejection it is desired to add that while it is proper in a case, where a mechanism has a part which performs an independent function, to claim both the mechanism and the part, as independent elements (*ex parte Duncan et al*, 124 O. G. 1207), yet such is not the case here. As heretofore stated, applicant has only a single skirt section and by separately reciting different parts of that skirt as independent elements he necessarily would include that type of piston in which the skirt is formed of separate slipper sections, which is something this applicant did not have in mind at the time the case was filed, or, at least, which is beyond anything disclosed in this application.

In other words, and to use Judge Tuttle's simile in *Bindley vs. Detroit River Tunnel Co., et al*. (253 F. R.,

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751) an applicant may not properly, like Balboa when he discovered the Pacific, claim "not only what he can see, but make broad and sweeping claims, assuming no one else has any rights"; but rather must, like our Pilgrim Fathers, "settle down on a little patch and carefully fence it around, to indicate just what belongs to them."

Of course applicant is entitled to as broad claims as the art will stand, but such a claim must necessarily be within the limits of applicant's invention as described in his specification and illustrated by his drawing. As was stated in *Burroughs Adding Machine Co., vs. Felt and Tarrant Mfg. Co.*, 243 F. R. 861, 870, it is—

"a fundamental and controlling rule that a patentee's broadest claim can be no broader than his actual invention, no matter how it may be expressed or what other claims his patent may contain. When a patentee has fully and clearly described his actual invention in the specification and drawings of his patent, and has fully covered that invention by the broadest claim to monopoly which the law will allow him, he cannot then, by merely including in his patent a more broadly or more vaguely stated claim, cover and monopolize something more than and different from his real invention."

To state this matter in another way, the question raised by presenting the claims now rejected is the same as was raised in the case of *State Bank of Chicago v. Hillman's*, 180 F. R. 732, and is this: Can an applicant rightfully include in his claims something that does not emerge from his description? The Examiner thinks not. To hold otherwise would enable an applicant to use his disclosure of a definite, tangible thing as a basis on which to draw claims which are inflated and expanded to cover wholly dissimilar devices which are in nowise the mechanical equivalents of the definite thing disclosed in the application. As was stated by the Court in the case cited:

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"The description is required to set forth the invention in such full, clear, concise and exact terms as to enable any person, skilled in the art to which it appertains, or with which it is most nearly connected, to make and use the same; and the claim is to enable the public to know the bounds and scope of the invention 'thus disclosed'; but 'any claim which is broader than the described invention, is void; even where that invention is valuable, and could have supported a valuable claim.' *Walker on Patents* (4th Ed.) 177, citing *Edison v. American Mutoscope Co.*, 114 Fed. 934, 52 C. C. 546."

Furthermore, while the Examiner does not entertain any doubt as to the correctness of the foregoing rejection, yet it is well settled that in a case which has been pending in the Office for a number of years, every doubt as to applicant's right to make claims of the nature rejected should be resolved against him. (*Ex parte Pope*, 222 O. G. 1055 and *ex parte Fripps*, 227 O. G. 737). And this working rule would appear to be especially applicable where the Office has reason to believe that patents have been granted containing claims drawn specifically to devices which are different, both in function and structure, to the one disclosed in the application under consideration, and claims are presented in such application worded in such manner as to dominate the patented devices.

It is noted that this case has been pending since November 30, 1917, and that applicant has had ample opportunity to present and have considered all claims and arguments he desires. The Examiner has no new

reasons or references to present, and this action is accordingly made *final*. See *ex parte Poulson*, 175 O. G. 365, 1912 C. D. 38, the decisions referred to therein, and *ex parte Jackson*, 353 O. G. 5, 1926 C. D. 102. The Examiner will admit any amendment, if presented within

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the statutory period, which will enable him to pass this case for issue, but will not admit any amendment which will not accomplish this result. Such amendments as properly accompany an appeal may, of course, be entered if presented in accordance with the second paragraph of Rule 68.

Claim 42 is also rejected, along with claim 41, on Spillman and Ebbs, both of record, for the reasons set forth in the Office action dated January 30, 1922, (Paper No. 10). If applicant appeals he should furnish an affidavit under Rule 48 to the effect, that the cylinder exerts pressure on the piston.

Claims 1 to 13, inclusive, 15, 23, 24, 26, 28 to 33, inclusive, and 43 may be allowed.

Claims 14, 16, 17, 19, 20, 21, 22, 27, 34 to 43, inclusive, and 44 and 45 are *finally* rejected.

C. C. HENRY,

Examiner.

H.W.F.G.

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(U. S. Patent Office May 2-1931 Division 12, Paper No. 52)

(Mail Division Apr 30 31 U. S. Patent Office)

IN THE UNITED STATES PATENT OFFICE

Application of:

Edward J. Gulick

Serial No. 204,661

Filed Nov. 30, 1917

For—Pistons

Division 12.

Not ent.

W. G.

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

In the matter of the above entitled application, and in response to Patent Office Letter of April 24, 1931, please amend as follows:

Claim 14, line 4, after "parts" insert ~~—thereof designed—~~

Claims 16, 17, 19 and 21, at the end of line 3 of each of these claims insert ~~—thereof designed—~~

Claim 20, line 4, after "parts" insert ~~—thereof designed—~~

Claim 22, line 3, after "parts" insert ~~—thereof designed—~~

Claim 27, line 4, after "parts" insert ~~—thereof designed—~~

Claim 34, line 4, cancel "for receiving" and insert ~~—thereof designed to receive—~~

Claim 35, line 2, cancel "having", and insert: —, parts of said skirt forming—

line 2, at the end of the line insert ~~—designed—~~

Claim 36, line 2, cancel "having" and insert: —, parts of said skirt forming—

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Claim 37, line 4, after "skirt" insert ~~—being integral and—~~

Claim 38, line 4, after "said skirt" insert ~~—being integral and—~~

line 5, cancel "arranged" and insert ~~—designed—~~

Claim 39, line 3, after "slitted" insert ~~—one piece—~~

Claim 39, line 6, cancel "arranged" and insert ~~—designed—~~

Claim 40, line 4, after "said skirt" insert ~~—being integral and—~~

line 5, cancel "arranged" and insert ~~—designed—~~

Claim 42, line 4, after "said skirt" insert ~~—being integral and—~~

Claim 44, line 2, before "guide portion" cancel "a" and insert ~~—an integral—~~

line 3, cancel "for receiving" and insert ~~—thereof designed to receive—~~

Claim 45, line 2, before "guide" cancel "a" and insert ~~—an integral—~~

line 4, cancel "for receiving" and insert ~~—thereof designed to receive—~~

REMARKS

Applicant has carefully considered the Examiner's objection to the terms used in certain of the rejected claims and he has amended these claims to overcome these objections. The "cylinder-engaging parts" recited in the claims are now carefully defined as parts of the guide portion of the skirt. This change also brings the statement of the claims clearly within the wording approved by the Court in connection with this applica-

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tion in Patent Appeal 2608, 47 F. (2) 365 wherein it was held that—

"* * * the combination in Gulick certainly has cylinder engaging parts which are diametrically opposite to each other * * *"

The objectionable terms "for receiving" the angular thrust from the connecting rod have been changed to define these parts as "designed to receive" the thrust from the connecting rod. It is believed that these changes materially improve the statement in the claims and that they overcome the Examiner's objections to the previously used wording of the claims. These claims define structure that is not found in the prior art and are now believed to be allowable.

Reconsideration of the Examiner's rejection of claims 41 and 42 on the Spillman & Ebbs constructions is requested in view of the inherent non-yielding characteristics of both of these constructions when they are subjected to cylinder wall pressure by reason of thermal expansion of the piston in an engine cylinder during operation. In Ebbs, the bearing parts "f" are rigidly carried by the heavy metal cross-head "c." Any thermal expansion of this cross-head would carry the bearing parts outwardly and result in seizing of the piston. This is also true of the Spillman construction. No combination of these references, with the addition of modifications that materially change the inherent functional characteristics of the original structures is warranted when such modifications are not even remotely suggested by either reference.

As now presented, claim 41 specifies that the skirt must be so slit as to render it "yieldable on every diameter in response to cylinder wall pressure." This claim also specifies that the bosses are yieldingly connected to

the skirt so that the skirt is yieldable in response to cylinder wall pressure. Gulick was the originator of this character of piston and is believed to be entitled to this

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claim. This claim closely parallels allowed claim 30 that was involved in Patent Appeal 2609, 47(2) 367.

In addition to the limitations appearing in claim 41, claim 42 specifies that the means connecting the bosses with the skirt is yieldable in the direction of the boss axis and is rigid in the direction of thrust from the connecting rod which is transverse to the boss axis. Gulick was the first to appreciate the importance of a piston construction that would receive the explosion thrusts on the skirt through webs that were non-yielding in the direction of the explosion thrusts in combination with a skirt that could yield in response to cylinder wall pressure caused by thermal expansion of the piston body. The importance of this relationship has been emphasized time and again in the decisions relating to the Gulick disclosure and the pioneer nature of this invention warrants the broad protection defined in these claims.

The affidavit under Rule 48 will be provided in due course.

Respectfully submitted,

EDWARD J. GULICK,

By EVANS & McCoy,

Attorneys.

Washington, D. C.,
April 30, 1931.

(Approved May 2 1931 C. C. Henry, Examiner, Div. 12)

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May 16 Paper #53

(Mail Division May 15 31 U. S. Patent Office)

(Issue Division May 18 1931 U. S. Patent Office)

IN THE UNITED STATES PATENT OFFICE

Application of
Edward J. Gulick
Serial No. 204,661
Filed November 30, 1917
For Pistons
Div. 12, Room 380.

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

In further response to Patent Office Letter of April 24, 1931, applicant is submitting herewith an Affidavit under Rule 48, setting forth the fact that under normal operating conditions the piston shown and described in the foregoing application is subjected to pressure from the cylinder wall, and that this was known to applicant at the time the invention was made. The remainder of the affidavit is the usual form of supplemental oath.

It is now believed that the claims of this application are in condition for allowance, since the amendments made in the claims of the application were believed to comply with the Examiner's suggestions at the time of counsel's interview with the Examiner about the time of filing the last amendment.

Respectfully submitted,

EDWARD J. GULICK,
By EVANS & MCCOY,

Attorneys.

Cleveland, Ohio
May 14, 1931
WCM/LR

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(Mail Division May 15 31 U. S. Patent Office)

(Issue Division May 18 1931 U. S. Patent Office)

Paper # 53

IN THE UNITED STATES PATENT OFFICE

Application of
Edward J. Gulick
Serial No. 204,661
Filed Nov. 30, 1917
For Pistons
Div. 12, Room 380.

SUPPLEMENTAL OATH

STATE OF INDIANA }
COUNTY OF ELKHART } ss.

Edward J. Gulick, whose application for Letters Patent for an improvement in Pistons, Serial No. 204,661, was filed in the United States Patent Office on or about the 30th day of November, 1917, being duly sworn, deposes and says:

That the piston shown and described in the aforesaid application is normally fitted in the engine cylinder with an operating clearance; that thermal expansion of the piston during operation normally causes the engine cylinder to exert pressure on the piston body; that this fact was known to him at the time he made his invention disclosed in the aforesaid application for Letters Patent; and that the subject matter of each of the following claims now in this application was part of his invention, was invented before he filed his original application above identified for such invention; was not known or used before his invention, was not patented or described in a printed publication in any country more than two years before his application, was not patented in a foreign country on an application filed by himself or his legal representatives or assigns more than twelve months before his application, was not in public use or on sale in this country for more than two years before the date of his application, and has not been abandoned:

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1. A piston comprising a head, a skirt separated at its periphery from the head, and pin bosses connected to the head and to the upper and lower parts of the skirt, said skirt being split longitudinally at one side between its connections to said bosses.

2. A piston comprising a head, a skirt separated at its periphery from the head, and pin bosses integrally connected to the head and to the upper and lower part of the skirt, the outer ends of the pin bosses being spaced from the opposing parts of the skirt wall and said skirt having openings opposite the open ends of the bosses, said skirt being slit longitudinally on one side between its connections to said bosses.

3. A piston comprising a head, a skirt separated at its periphery from the head, and pin bosses integrally connected to the head and to the skirt in four longitudinal lines, the ends of said bosses being spaced from the opposing parts of the wall of the skirt, said skirt having openings therethrough opposite the open ends of the bosses.

4. A piston comprising a head, a skirt separated at its periphery from the head, and pin bosses connected to the head and also connected to the skirt both above and below the bosses, said skirt being split longitudinally between its connections to said bosses.

5. An integrally cast piston comprising a head, a skirt separated at its periphery from the head, and pin bosses integrally connected to the head and to the skirt at both sides and in the zone of said bosses, the bosses having their ends spaced from the opposing parts of the skirt wall, said skirt being split longitudinally between its connections to said bosses.

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6. An integrally cast piston comprising a head, a skirt, separated piston pin bosses within the skirt, and an integral flange on each of said bosses intermediate its ends, said flange extending from both sides of the boss to the piston skirt and integrally united therewith in the zone of the boss, said flanges being yieldable in the direction of the piston pin boss axis and relatively rigid in the direction of their length.

7. A piston comprising a head, a skirt, separated piston pin bosses integral with the head and disposed within the skirt, and integral transversely flexible webs extending from the intermediate part of each of said bosses to the skirt wall in the zone of the boss for supporting the bosses from the adjacent part of the skirt.

8. A piston comprising a head, a skirt having its periphery separated from the head, pin bosses in the piston spaced from the wall of the skirt and conduits leading from the top of said skirt to the interior of said bosses.

9. A piston comprising a head, a skirt having its periphery separated from the head, pin bosses in the piston, the ends of such bosses being spaced from the walls of the skirt, means integrally connecting the bosses with the head and skirt, and pipes leading from the upper part of the skirt to the bosses.

10. A piston comprising a head, a skirt, separated piston pin bosses within the skirt, and an intermediate flange on each of said bosses intermediate its ends, said flange extending laterally from both sides of the boss to the piston skirt in a curve and integrally united with the skirt in the zone of the boss.

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11. A piston comprising a head portion, a skirt portion, two separated pin bosses, connecting flanges in the zone of the bosses and extending from the bosses to the skirt on both sides of the bosses, connecting means from each of the bosses to the head portion, the skirt portion being entirely separated from the head portion except through the boss connections, and the skirt portion being split longitudinally of the piston to permit free expansion and contraction.

12. A piston comprising a head portion, a skirt portion, two separated pin bosses, connecting flanges in the zone of the bosses and extending from the bosses to the skirt on both sides of the bosses, connecting means from each of the bosses to the head portion, the skirt portion being entirely separated from the head portion except through the boss connections, and the skirt portion being split longitudinally of the piston to permit free expansion and contraction, and the skirt portion being cut away adjacent the outer ends of the piston bosses.

13. A piston having a head portion with a ring groove therein, a skirt portion having its cylinder-engaging part separated from the head portion, separated pin bosses having integral flanges connecting them with the skirt on both sides of the bosses and with the head portion respectively, said skirt being split from top to bottom on one side only of the pin bosses to permit free expansion and contraction of the skirt portion.

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Serial No. 204,661

14. A piston for internal combustion engines comprising in combination a head portion having an end wall and a ring-packed side wall, a guide portion having an annular bearing surface at the open end thereof and diametrically opposite cylinder-engaging parts thereof designed to take the angular thrust of a connecting rod and each separated at its upper end from the said side wall of the head portion by an unobstructed air gap, a pair of separated pin bosses disposed on an axis between said cylinder-engaging parts, a pair of longitudinally disposed walls connected to said bosses and each joined at relatively widely separated points to the said cylinder-engaging parts above and below the plane of the boss axis, said walls being disposed within the maximum diameter of the piston, and integral, rigid connections extending from the bosses to the head portion.

15. A piston for internal combustion engines comprising in combination a head portion having an end wall and a side wall, a guide portion having on one side a cylinder-engaging part disposed to take the angular thrust of a connecting rod during one stroke of the piston, said cylinder-engaging part being separated at its upper end from said side wall by an air gap and being split longitudinally to accommodate expansion incident to the heating of the piston, a pair of separated pin bosses, and walls integrally uniting said bosses, the guide portion and the head portion.

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16. A piston for internal combustion engines comprising in combination a head portion having an end wall and a side wall, a guide portion having diametrically opposite cylinder-engaging parts thereof designed to take the angular thrust of a connecting rod and each separated at its upper end from the said side wall by an air

gap and one of said cylinder-engaging parts being split longitudinally from its upper edge to its lower edge, a pair of separated pin bosses disposed on an axis between said cylinder-engaging parts, and walls integrally uniting said bosses, the guide portion and the head portion, said split in the cylinder-engaging face of said guide portion being disposed between the connections thereto of said walls.

17. A piston for internal combustion engines comprising in combination a head portion having an end wall and a side wall, a guide portion having diametrically opposite cylinder-engaging parts thereof designed to take the angular thrust of a connecting rod and arcuate cylinder-engaging parts joining said diametrically opposite parts at the lower end of the guide, the said diametrically opposite parts each being separated at its upper end from the side wall of the head section by an air gap, a pair of separated pin bosses disposed on an axis between said cylinder-engaging parts, a pair of transversely flexible walls integrally connected to said bosses and integrally joined to the cylinder-engaging parts at points above and below the plane of the boss axis, said walls being disposed within the maximum diameter of the piston, and connections extending from the bosses to the head portion and integral therewith.

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Serial No. 204,661

19. A piston for internal combustion engines comprising in combination a head portion having an end wall and a side wall, a guide portion having diametrically opposite cylinder-engaging parts thereof designed to take the angular thrust of a connecting rod and each separated at its upper end from the said side wall by an air gap, a pair of separated pin bosses disposed on an axis between said cylinder-engaging parts, a pair of walls connected to said bosses and joined to the said cylinder-engaging parts at points above and below the plane of the boss axis, and rigid, integral connections between the bosses and the head portion comprising upward extensions of said walls with strengthening ribs disposed substantially at right angles thereto.

20. A piston for internal combustion engines comprising in combination a head portion having an end wall and a side wall, a guide portion having diametrically opposite cylinder-engaging parts thereof designed to take

the angular thrust of a connecting rod and each separated at its upper end from the said side wall by an air gap, spaced supporting connections between said head and guide portions, one of said cylinder-engaging parts being split longitudinally from its upper edge to its lower edge between said supporting connections, a pair of separated pin bosses disposed on an axis between said cylinder-engaging parts, a pair of walls disposed within the maximum diameter of the piston and integrally connected to said bosses and to said cylinder-engaging parts and to said head portion.

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21. A piston for internal combustion engines comprising in combination a head portion having an end wall and a side wall, a guide portion having diametrically opposite cylinder-engaging parts thereof designed to take the angular thrust of a connecting rod and each separated at its upper end from the said wall by an air gap and one of said cylinder-engaging parts being split longitudinally from its upper edge to its lower edge, a pair of separated pin bosses disposed on an axis between said cylinder-engaging parts, and walls integrally uniting said bosses, the guide portion and the head portion, the guide structure and said walls being adapted to permit the split of the cylinder-engaging part to close more or less under the action of forces incident to the heating of the piston during operation.

22. A piston comprising in combination a head portion having an end wall and a side wall, a guide portion having diametrically opposite cylinder-engaging parts thereof designed to take the angular thrust of a connecting rod and each separated at its upper end from the said side wall by an air gap, a pair of separated pin bosses disposed on an axis between said cylinder-engaging parts, a pair of walls connected to said bosses and to said cylinder-engaging parts, and connections extending from the bosses to the head section, one of the said cylinder-engaging parts being split longitudinally between the points of attachment thereto of the said walls.

23. In a piston, the combination of a head portion having an end wall and a side wall, a guide portion, a pair of separated piston pin bosses connected to the head portion, and webs disposed longitudinally of the piston in-

tegrally joining the inner parts of said bosses to the guide portion in the zone of said bosses.

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Serial No. 204,661

24. A piston for internal combustion engines comprising a head portion, a guide portion, a pair of separated pin bosses connected to the head portion and arranged within the maximum diameter of the piston whereby the outer ends of the bosses will be out of contact with the cylinder wall, and a flange on each of said bosses near its inner end extending laterally from both sides of the boss to the guide portion in a curve and integrally united with the guide portion in the zone of the boss, said flange being disposed longitudinally of the piston.

26. An integrally formed piston for internal combustion engines comprising in combination a head portion having an end wall and a side wall, a pair of separated pin bosses, and a guide portion connected to said bosses and having on one side a cylinder-engaging part disposed to take the angular thrust of a connecting rod during one stroke of the piston, said cylinder-engaging part being separated at its upper end from said side wall of the head portion by an air gap and being split longitudinally between its connections to said bosses to accommodate expansion incident to the heating of the piston.

27. An integrally formed piston for internal combustion engines comprising in combination a head portion having an end wall and a side wall, a guide portion having diametrically opposite cylinder-engaging parts thereof designed to take the angular thrust of a connecting rod and each separated at its upper end from the said side wall by an air gap, spaced supporting connections between said head and guide portions, one of said cylinder-engaging parts being split longitudinally between its supporting connections from its upper edge to its lower edge, and a pair of separated pin bosses disposed on an axis between said cylinder-engaging parts.

—9—

204661—140

Serial No. 204,661

28. A one-piece piston with a solid end portion and a skirt portion supported therefrom by spaced integral connections and having formed in its peripheral face a transverse slot adjacent the solid end of the piston and a

single longitudinal slot in the skirt between the spaced integral connections and extending from the transverse slot to the open end of the piston, said slots forming adjacent disconnected main peripheral bearing portions in the skirt which are capable of unrestrained outward and inward movement, the bearing face of said piston diametrically opposite said longitudinal slot being circumferentially continuous between the spaced integral connections of the skirt to the head on that side of the skirt.

29. A one-piece piston provided with a solid end portion and a skirt portion, said skirt portion having oppositely disposed thrust bearing faces and a longitudinally extending slot formed through the thickness of its wall, said slot extending from the rear edge of the skirt portion through one of said thrust bearing faces and forming adjacent disconnected parts of a thrust bearing face in said skirt portion which are capable of being moved inwardly or outwardly without restraint.

30. A piston comprising a head and body, internal yielding ribs supporting the head and body, and means on said ribs adapted to form engaging connection with operable parts for said piston.

—10—

204661—141

Serial No. 204,661

31. A piston open at one end and having a packing ring supporting portion and a cylinder-engaging portion, said cylinder-engaging portion having a slot which is cut through the thickness of its peripheral wall and extending from the open end of the piston to said ring supporting portion, a pair of wrist pin bearings depended from said ring supporting portion and separated from said cylinder-engaging portion, and tying means extending from each of said wrist pin bearings, each being co-operably connected at their opposite ends to said cylinder-engaging portion.

32. A piston having a head with top and side walls in combination with a guide structure connected thereto and comprising diametrically opposite cylinder-engaging parts formed with air spaces between their upper edges and the bottom edge of the side wall of the head, wrist pin bosses between the cylinder-engaging parts, and means joining said bosses and cylinder-engaging parts together, the said joining means being resiliently yieldable and arranged not to engage the cylinder.

33. A piston closed at one end and open at its opposite end, said piston having an annular cutting formed through the thickness of its peripheral wall, thereby providing a separated sleeve-like skirt which is approximately cylinder-bearing in its entirety, a pair of wrist pin bearings depended from said piston end and being free from engagement with said skirt, supporting means extending from each of said bearings to said skirt, said skirt being provided with a longitudinal slot cut through the thickness of its wall between its connections to said supporting means and extending from the open end thereof to said annular cutting.

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204661-142

Serial No. 204,661

34. A piston for an internal combustion engine cylinder comprising in combination, a head portion having an end wall and a side wall, a guide portion having diametrically opposite cylinder-engaging parts thereof designed to receive the side thrust of a connecting rod and arcuate cylinder-engaging parts joining said diametrically opposite parts at the lower end of the guide portion to provide an annular bearing face adjacent the open end of the piston, each of said diametrically opposite cylinder-engaging parts being separated at its upper end from the side wall of the head portion, a pair of separated pin bosses disposed on an axis between said cylinder-engaging parts, a pair of spaced walls, each of which connects one of said bosses to said cylinder-engaging parts at points above and below the plane of the boss axis, one of said diametrically opposite cylinder-engaging parts being split longitudinally from its upper edge to its lower edge between its connections to said walls, and connections extending from the bosses to the head portion, whereby said piston skirt is rendered yieldable during operation in response to cylinder wall pressure.

35. A piston for use in an engine cylinder comprising a head, a skirt, parts of said skirt forming oppositely positioned main bearing portions designed to take the side thrust of a connecting rod, a pair of spaced wrist pin bosses, means integrally connecting the bosses to the head, and means integrally connecting each boss to both of said opposite main bearing portions, one main bearing portion being circumferentially continuous between its connections to the bosses and the other main bearing portion being separated from the head and slit longi-

tudinally between its connections to the bosses to render said slit main bearing portion yieldable in response to pressure from the engine cylinder during operation.

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204661-143

Serial No. 204,661

36. A piston for use in an engine cylinder comprising a head, a skirt, parts of said skirt forming oppositely positioned main bearing portions to take the side thrust of a connecting rod, a pair of spaced wrist pin bosses, means integrally connecting the bosses to the head, and means integrally connecting each boss to both of said opposite main bearing portions, one main bearing portion being circumferentially continuous between its connections to the bosses and the other main bearing portion being separated from the head and slit longitudinally its entire length between its connections to the bosses to render said slit main bearing portion yieldable in response to pressure from the engine cylinder during operation.

37. A single-piece, integral piston, comprising a head, a pair of spaced wrist pin bosses having a common axis, a skirt, and means yieldingly connecting the skirt to the head, said skirt being integral and having main cylinder-bearing faces disposed on opposite sides of the axis of said wrist pin bosses, said skirt being separated from the head at the upper end of each of said bearing faces, one only of said main cylinder bearing faces being slit longitudinally between its connections to the head, whereby said head may expand and contract during operation of said piston substantially independently of said skirt portion when expansion of the skirt portion is restrained.

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204661-144

Serial No. 204,661

38. A single-piece, integrally cast piston for use in an engine, comprising a head, wrist pin bosses having a common axis, a skirt, and means connecting said head and bosses and skirt together, said skirt being integral and having a main bearing portion disposed on each side of the said wrist pin boss axis and designed to take the side thrust produced by the angularity of the connecting rod of the engine, said piston having a transverse slit through its wall on one side of the boss axis, portions of said skirt on the transversely slit side of the piston also being slit longitudinally between its connections to

said bosses to provide a peripheral main bearing portion in the said transversely slit side of said piston that is capable of yielding in response to pressure from the engine cylinder during operation of the piston.

39. A single-piece, integral piston for operation in an internal combustion engine cylinder, comprising a head, spaced wrist pin bosses, a longitudinally slitted, one-piece skirt that is yieldable in response to cylinder wall pressure having cylinder-engaging faces disposed at opposite sides of the axis of said bosses and designed to yieldingly engage the walls of the cylinder during operation, said head and skirt being separated at the upper end of each of said cylinder-engaging faces, and means yieldingly connecting the skirt to said head including means connecting the bosses and the skirt, said means connecting said bosses and said skirt being substantially rigid in the direction transverse to the axis of the bosses, whereby said head portion may expand and contract during operation of said piston without binding engagement of the skirt with the walls of the cylinder.

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204661—145

Serial No. 204,661

40. A single-piece, integrally cast piston for use in an engine, comprising a head, wrist pin bosses having a common axis, a skirt, and means connecting said head and bosses and skirt together, said skirt being integral and having a main bearing portion disposed on each side of the said wrist pin boss axis and designed to take the side thrust produced by the angularity of the connecting rod of the engine, said piston having a transverse slit through its wall on both sides of the boss axis, one only of said main bearing portions being slit longitudinally between its connections to said bosses to provide a peripheral bearing portion therein that is capable of yielding outward and inward movement relative to the head during operation of the piston.

41. A piston for an engine cylinder comprising a skirt, a head separated from the skirt wall around its entire periphery, said skirt being longitudinally slit to render the skirt wall yieldable on every diameter in response to cylinder wall pressure, wrist pin bosses, and means rigidly connecting said bosses to the head and yieldingly connecting said bosses to the skirt whereby said skirt is yieldable in response to cylinder wall pressure.

42. A piston for an engine cylinder comprising a cylindrical skirt that is longitudinally slit and yieldable on every diameter in response to cylinder wall pressure, a pair of wrist pin bosses having a common axis, said skirt being integral and having a main cylinder bearing portion on each side of the axis of said wrist pin bosses, a head peripherally separated from at least one of said main cylinder-bearing portions, and means connecting the bosses with the skirt, said means being yieldable in the direction of the boss axis and substantially rigid in the direction transverse to said axis, whereby said head may freely expand and contract during operation of the piston when expansion of the skirt is restrained.

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Serial No. 204,661

43. A piston comprising a head, a pair of spaced wrist pin bosses rigidly carried by the head and having a common axis, a skirt that is separated from the head on each side of the wrist pin bosses and longitudinally slit between the bosses on one side only of the bosses to render the skirt circumferentially yielding on that side of said bosses and circumferentially non-yielding on the opposite side of said bosses, and means substantially non-yielding in the direction transverse to the boss axis connecting the bosses with the skirt.

44. A piston for an engine cylinder comprising, a head, and an integral guide portion having diametrically opposite cylinder-engaging parts thereof designed to receive the thrust of a connecting rod during operation, one of said cylinder-engaging parts being rigidly connected to the head in the direction of load thrust from the connecting rod, the opposite cylinder-engaging part being yieldable relative to the head in response to cylinder wall pressure, whereby thermal expansion of said piston will not cause it to seize in the cylinder during operation.

45. A piston for an internal combustion engine cylinder, comprising a head portion carrying packing means and an integral guide portion integral with the head portion and having diametrically opposite cylinder-engaging parts thereof designed to receive side thrust from a connecting rod, one of said cylinder-engaging parts being slit longitudinally to render it materially more yielding than the opposite cylinder-engaging part.

EDWARD J. GULICK.

Sworn to and subscribed before me this 12th day of May, 1931.

WILLIAM E. WIDER,

(Notarial Seal)

Notary Public.

Com. exp. Jan. 17/1934.

—16—

204661—147

(Mailed May 16 1931).

Div. 12 4—jtc

181

Serial No. 204,661

Address only

The Commissioner of Patents
Washington, D. C.

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE

Washington May 16, 1931.

Edward J. Julick (Assor etc.)

Your Application for a patent for an Improvement in Piston filed Nov. 30, 1917 has been examined and Allowed with 43 claims.

The final fee, Twenty-Five Dollars, With \$1 Additional For Each Claim Allowed In Excess Of 20, must be paid not later than Six Months from the date of this present notice of allowance. If the final fee be not paid within that period, the patent will be withheld, but the application may be renewed within one year after the date of the original notice with a renewal fee of \$25 and \$1 additional for each claim in excess of 20.

The office delivers patents upon the day of their date, on which date their term begins to run. The preparation of the patent for final signing and sealing will require about four weeks, and such work will not be begun until after payment of the necessary final fee.

When the final fee is paid, there should also be sent, Distinctly And Plainly Written, the name of the Inventor, Title Of The Invention, And Serial Number As Above Given, Date Of Allowance (which is the date of this circular), Date Of Filing, and, if assigned, the Names Of The Assignees.

If it is desired to have the patent issue to an Assignee or Assignees, an assignment containing a Request to that effect, together with the Fee for recording the same, must be filed in this office on or before the date of payment of the final fee.

After issue of the patent, uncertified copies of the drawings and specifications may be purchased at the price of Ten Cents Each. The money should accompany the order. Postage stamps will not be received.


The final fee will Not be received from other than the applicant, his assignee or attorney, or a party in interest as shown by the records of the Patent Office.

Notice.—When The Number Of Claims Allowed Is In Excess Of 20, No Sum Less Than \$25 Plus \$1 Additional For Each Claim In Excess Of Twenty Can Be Accepted As The Final Fee.

Respectfully,

THOMAS E. ROBERTSON,
Commissioner of Patents.

Evans & McCoy,
724 Bulkley Bldg.,
Cleveland, Ohio.

 In remitting the final fee give the serial number at the head of this Notice.

 Uncertified checks will not be accepted.

204661—148

Jun-18-31 256460 K 1 Check—25.00

Jun-18-31 256460 K 1 Check—13.00

Rec'd

U. S. Patent Office

Rec'd

U. S. Patent Office

(Mail Division Jun 18 31 U. S. Patent Office)

EVANS & MCCOY
PATENT LAWYERS
Bulkley Building
Cleveland

Lloyd L. Evans
William C. McCoy
Arnold C. Rood
Frank S. Greene

Telephone
Main 0470

Donald B. Waite

June 12, 1931.

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

Kindly apply the accompanying final fee affecting the application designated below:

1966

Defendants' Exhibit 4-L, File Wrapper

Edward J. Gulick
Serial No. 204,661
Filed Nov. 30, 1917
Pistons
Allowed May 16, 1931
Div. 12, Room 322

Patent to be issued to
The Cleveland Trust Company

Patent to be sent to
Evans & McCoy,
724 Bulkley Bldg.
Cleveland, Ohio.

Respectfully,

EVANS & MCCOY.

FW
Encl.
1163

Check 38— extd
\$10 Ex cl due by Nov. 16-1931
43 Claims allowed

204661—149

Jun-25-31° 261757 B 2 Check—10.00
(Mail Division Jun 25, 31 U. S. Patent Office)

Rec'd U. S. Patent Office

EVANS & MCCOY
PATENT LAWYERS
Bulkley Building
Cleveland

June 24, 1931.

Lloyd L. Evans
William C. McCoy
Arnold C. Rood
Frank S. Greene

Telephone
Main 0470

Donald B. Waite

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

Kindly apply the accompanying check of \$10.00 as
balance due on final fee affecting the application desig-
nated below:

Edward J. Gulick
Serial No. 204,661
Filed Nov. 30, 1917

Pistons

Allowed May 16, 1931
Div. 12, Room 322

Patent to be issued to
The Cleveland Trust Company

Patent to be sent to
Evans & McCoy,
724 Bulkley Building,
Cleveland, Ohio.

Respectfully,

EVANS & MCCOY.

ASC-c
Encl.
1163

204661-150

(Mailed Jul 8 1931)

bal.—~~Ex~~ claims B.

Div. 12 Room 380

4-E

Paper No. 54

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
Washington

Address only

"The Commissioner of Patents,
Washington, D. C.,"
and not any official by name

All communications respecting this
application should give the serial number,
date of filing, and name of
the applicant

*Please find below a communication from the EXAM-
INER in charge of this application*

THOMAS E. ROBERTSON,

Commissioner of Patents,

Evans & McCoy,
724 Bulkley Bldg.,
Cleveland, Ohio.

Applicant Edward J. Gulick
Ser. No. 204,661
Filed Nov. 30, 1917
For Pistons.

In accordance with the provisions of Order No. 2308, dated March 12, 1917, which reads in part as follows:

Obvious informalities in the application may be corrected by the examiner, but said correction must be in the form of an amendment, approved by the Principal Examiner in writing, placed in the file, and made a part of the record. The changes specified in the amendment will be entered by the clerk in the regular way.

the changes, hereinafter specified, are made by the examiner in the application above identified.

Should these changes not be satisfactory to the applicant, appropriate amendment may be proposed under the provisions of Rule 78, provided the specification has not been printed.

The application has been amended as follows:

K Claim 28, (original claim 27), line 2, —
having— has been inserted after “portion”
and —and— after “faces” has been canceled.

W. C. GLEICHMAN,
Acting Examiner.

H.W.F.G.

204661—151

(Mail Room Aug-3 1931 U. S. Patent Office)

B 54 55
original patent

EVANS & McCOY
PATENT LAWYERS
Bulkley Building
Cleveland

Lloyd L. Evans
William C. McCoy
Arnold C. Rood
Frank S. Greene

Telephone
Main 0470

August 1, 1931.

Donald B. Waite

Hon. Commissioner of Patents,

Washington, D. C.

Re: *Gulick Patent No. 1,815,733*

Sir:

It is noted that the word “separating” in line 9 of claim 30 of the above designated patent is incorrect, and should read “and separated.” **P. E.**

This claim originated as Count 1 of Interference No. 49,571 wherein the correct wording of the claim appears.

Correction is requested because the language of the claim is incorrect as it now stands in the printed patent.

The original patent is enclosed.

Recommended **R. F. W.**

Respectfully submitted,

EVANS & McCoy.

WCM-FW

Encl.

(Approved Aug 25 1931 **T. E. Robertson** Commissioner
of Patents)

204661-152

ABS

Address only

55 56

Letter No. 113455

The Commissioner of Patents
Washington, D. C.

DEPARTMENT OF COMMERCE

UNITED STATES PATENT OFFICE

Washington, August 19, 1931.

In the matter of
Letters Patent No. 1,815,733,
Edward J. Gulick, Assor.,
July 21, 1931,
Evans and McCoy, attorneys.

**REPORT OF THE CHIEF OF THE ISSUE AND
GAZETTE DIVISION.**

Attorneys return Letters Patent requesting that a certificate be issued correcting the following error:

Line 9 of Claim 30, the word "separating"
should read "and separating"

Examination of the record discloses that the error
is chargeable to the Printer.

Respectfully,

J. H. LUTHY,

Actg Chief of the Issue Division.

To Commissioner of Patents.

204661-153

ABS

Address only
The Commissioner of Patents
Washington, D. C.

Letter No. 57

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE

Washington, September 24, 1931.

Messrs. Evans and McCoy,
Bulkley Building,
Cleveland, Ohio.

Gentlemen:—

Herewith, find Letters Patent No. 1,815,733, with the
Certificate of Correction endorsed thereon, in accordance
with your request.

Sincerely yours,

J. A. BREARLEY,
J. A. BREARLEY,

Chief Clerk.
Div. B.

Inclosure.

204661—154

NOTICE ON FILING OF PATENT CASE

(Mail Room Dec 16 1931 U. S. Patent Office)

DISTRICT COURT OF THE UNITED STATES

NORTHERN DISTRICT OF OHIO
EASTERN DIVISION

Honorable Commissioner of Patents, Washington, D. C.

SIR:

In compliance with the Act of February 18, 1922 (41
42 Stat. L.....), you are advised that there was filed on
the 15th day of December, 1931, in this court an action,
suit, or proceeding, No. 4106 Equity, entitled—

Name The Cleveland Trust Company, Plaintiff
Address Cleveland, Ohio

RE:

VERSUS

Name The Lawrence-Ohio Company, Defendant
Address Cleveland, Ohio

brought upon the following patents:

PATENT NO.	DATE OF PATENT	PATENTEE
1,402,309	January 3, 1922	The Cleveland Trust Co.
1,763,523	June 10, 1930	The Cleveland Trust Co.
1,815,733	July 21, 1931	The Cleveland Trust Co.

In the above-entitled case, on the day of
....., 193 , the following patents have been
included by

(Insert amendment, answer, cross bill
or other pleading)

PATENT NO.	DATE OF PATENT	PATENTEE
------------	----------------	----------

In the above-entitled case the following decision has
been rendered or decree issued:

IN WITNESS WHEREOF, I have affixed my hand this
15th day of December, 1931, at Cleveland, Ohio.

B. C. ~~Mullen~~, Clerk.

F. J. Deaxler,

By O. M. NELSON,

Deputy Clerk.

204661—155

(Mail Room Jun 11 1932 U. S. Patent Office)

NOTICE ON FILING OF PATENT CASE

DISTRICT COURT OF THE UNITED STATES

NORTHERN DISTRICT OF OHIO

EASTERN DIVISION

Honorable Commissioner of Patents, Washington, D. C.

SIR:

In compliance with the Act of February 18, 1922 (41
42 Stat. L....), you are advised that there was filed on
the 15th day of December, 1931, in this court an action,
suit, or proceeding, No. 4106, entitled—

Name The Cleveland Trust Company, Plaintiff

Address Cleveland, Ohio

versus

Name The Lawrence-Ohio Company, Defendant

Address Cleveland, Ohio

brought upon the following patents:

PATENT NO.	DATE OF PATENT	PATENTEE
1,402,309	January 3, 1922	The Cleveland Trust Co.
1,763,523	June 10, 1930	The Cleveland Trust Co.
1,815,733	July 21, 1931	The Cleveland Trust Co.

In the above-entitled case, on the day of
....., 193..., the following patents have been
included by

(Insert amendment, answer, cross bill,
or other pleading)

PATENT NO.	DATE OF PATENT	PATENTEE
------------	----------------	----------

In the above-entitled case the following decision has
been rendered or decree issued:

June 10, 1932. Interlocutory Default Decree filed & ent.
U. S. Letters Patent No. 1,815,733 good &
valid in law as to claims 1, 15, 22, 25, to
30 incl. 41, 42, & 43: No. 1,763,523 good &
valid in law as to claims 3, 4; 1; No.
1,402,309 good & valid in law as to claims,
3, 4, 8, & 11; Pltf. is owner of each of the
above Letters Patent; deft. has infringed
each of the claims thereof; pltf. to re-
cover of deft.; cause referred to C. D.
Friebolin to determine amt. of damages
sustained; injunction granted; costs vs.
deft. West J.

IN WITNESS WHEREOF, I have affixed my hand this
10th day of June, 1932, at Cleveland, Ohio.

~~B. C. Muzzey~~

F. J. Denzler, Clerk.

By

Deputy Clerk.

201661-156

(Mail Room Sep 22 1932 U. S. Patent Office)

DISTRICT COURT OF THE UNITED STATES
EASTERN DISTRICT OF MICHIGANHONORABLE COMMISSIONER OF PATENTS,
WASHINGTON, D. C.

SIR:

In compliance with the Act of February 18, 1922 (42 Stat. L. 392), you are advised that there was filed on the 19th day of September, 1932, in this court an action, suit, or proceeding No. 5564, entitled:

Name The Cleveland Trust Company, Plaintiff,
Address Cleveland, Ohio

versus

Name Ray Day Piston Corporation of Detroit,
Defendant,
Address Detroit, Michigan

brought upon the following patents:

PATENT NO.	DATE OF PATENT	PATENTEE
1 1,402,309	Jan. 3d, 1922	Louis P. Mooers
2 1,763,523	June 10, 1930	Frank Jardine
3 1,815,733	July 20, 1931	Edward J. Gulick

In the above-entitled case, on the day of, 193..., the following patents have been included by (insert amendment, answer, cross bill, or other pleading):

PATENT NO.	DATE OF PATENT	PATENTEE
------------	----------------	----------

In the above-entitled case the following decision has been rendered or decree issued:

IN WITNESS WHEREOF I have affixed my hand this Nineteenth day of September, 1932, at Detroit, Michigan.

ELMER W. VOORHEIS,
Clerk of said Court.

By: ALBERT L. ALRED,
Deputy Clerk.

PRINTER'S NOTE:

A copy of U. S. Patent No. 1,815,733, July 21, 1931, to E. J. Gulick was bound into the original of this Exhibit at this point, but as it is incorporated, *supra*, page 1283, as Plaintiffs' Exhibit No. 2, it has been omitted to comply with the Equity Rule against duplication.

 2-421

 1917

CONTENTS:

1. Application 1 papers.
2. **Rej. Apr 2-1918**
3. **Rej Sept. 16, 1918**
4. **Amendment A July 26, 1919**
5. **Rej Nov 15 1919**
6. **Amendment B Sep. 24, 1920**
7. **Rej. Nov 19 1920**
8. **Amendment C Oct. 29, 1921**
9. **Amendment D and Affidavit Dec. 23, 1921**
10. **Rej Jan 30 1922**
11. **Amendment E Sept. 11, 1922**
12. **Oct 6-1922**
13. **Amendment (not ent) F and Sup. Oath Mar. 19/23**
14. **Sup Claims Apr 5-1923**
15. **Amendment G—April 16, 1923.**
16. **Intf Brief "A" (1)**
17. **Intf. Letter, "A" (1) Jul 7 1923**
18. **Intf. Brief "B" (2)**
19. **Intf Letter "B" (2) Jul 7 1923**
20. **Intf Brief "C" (3)**
21. **Intf Letter "C" (3) Jul 7 1923**
22. **Intf Brief "D" (4)**
23. **Intf Letter "D" (4) Jul 7 1923.**
24. **Intf Brief "E" (5)**
25. **Intf Letter "E" (5) Jul 7 1923**
26. **Intf Brief "F" (6)**
27. **Intf Letter "F" (6) Jul 7, 1923**
28. **Intf Brief "G" (7)**
29. **Intf Letter "G" (7) Jul 7 1923**
30. **Intf Brief "H" (8)**
31. **Intf Letter "H" (8) Jul 7 1923**
32. **Intf Brief "I" (9)**
33. **Intf Letter "I" (9) Jul 7 1923**

34. Intf Brief "L"
35. Intf Letter "L" (10) Jul 7 1923
36. Intf Brief "S" (11)
37. Intf Letter "S" Jul 7 1923
38. Intf Brief "T"
39. Intf Letter "T" Jul 7 1923
40. Asso Power of Atty June 29/23
41. Party Added (8) 1923
42. Party Added (4) Dec 1923
43. Rev. and Power of Atty by Assignee Mar. 3/24
44. Notices of Revocation and Acceptance Mar. 11
45. Power to inspect, Dec, 11. 192
46. Withdrawal of Power of Attorney July 20/2
47. Power of Atty by Assignee Aug. 3/
48. Permit to inspect Sept
49. Letter to Office (Drfts) Apr
50. Amendment H Apr 4
51. Final Rejection 1861 Apr
52. Amendment I Apr 30 1931
53. Oath May 15 1931
54. Exr's Amendment Jul 8 1931
55. Request for C of C. Aug 1/31
56. Report by D in B. Aug 19/31
57. Pat. returned with C of C
58. Notice of Suit Dec. 16-1931
59. Notice of Suit June 11-1932
60. Notice of Suit Sept. 22-1932
- 61.



DEFENDANTS' EXHIBIT 4-L₁.

File Wrapper and Contents of Mooers Patent in Suit.

(Filed January 27, 1934.)

2-390

**DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE**

*To all persons to whom these presents shall come,
Greeting:*

THIS IS TO CERTIFY that the annexed is a true copy from the records of this office of the File Wrapper and Contents, in the matter of the Letters Patent of Louis P. Mooers, Assignor by Direct and Mesne Assignments to The Cleveland Trust Company, Number 1,402,309, Granted January 3, 1922, for Improvement in Pistons for Internal Combustion Motors.

IN TESTIMONY WHEREOF I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the City of Washington, this 1st day of June, in the year of our Lord, one thousand nine hundred and twenty-three and of the Independence of the United States of America the one hundred and forty-seventh.

WM. A. KINNAN,

(Seal)

Acting Commissioner of Patents.

2-437

NUMBER (SERIES OF 1915),

172380 1917

DIV. 12 PATENT No. 1402309 (EX'R'S BOOK.) 41-2 B

Name Louis P. Mooers, Jan 3 1922

Assor^g of 1/2 to George B. Pitts, of Cleveland, Ohio,
by direct and mesne assigts. to The Cleveland Trust
Company, of Cleveland, Ohio, a corp. of Ohio.

of Cincinnati

County of

State of Ohio.

Invention Piston for Internal Combustion Motor and
Process of Making the same. Per C

PARTS OF APPLICATION FILED.

	Original.	Renewed.
Petition	June 2, 1917	, 191
Affidavit	" " 1917	, 191
Specification	" " 1917	, 191
Drawing 3 Shts	" " 1917	, 191
Photo Copy (Sheet 3)	Mar. 25, 1921	, 191
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Examined and Passed for

Issue	June 3, 1921	, 19
P. P. Pierce	Exr. Div. 12	Exr. Div. , 19
Notice of Allowance	Jun 3-1921 , 191	, 191
	By Commissioner.	By Commissioner.
Final Fee Cash \$20	Dec. 2, 1921	, 191
" " Cert.	, 191	, 191
Patented	Jan 3 1922	, 191
Attorney	Hayner H. Gordon, Ouray Bldg. City	

2

Associate Attorney

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(No. of Claims Allowed 9) Title as Allowed Piston for
Internal Combustion Motor—Print Claim 1 in O. G.
(Cl. 74-108)

Division of App., No., filed, 191..
2B

\$15—Rec'd	Division 12, Paper No. 1
Jun 2 1917 G	Jun 5 1917
C. C. U. S. Pat. Office	U. S. Patent Office

PETITION.

To the Commissioner of Patents:

Your petitioner, Louis P. Mooers, a citizen of the United States, residing at Cincinnati in the County of Hamilton, and State of Ohio, whose Post Office address is care of The Ahrens-Fox Fire Engine Co., Cincinnati, Ohio, prays that Letters Patent may be granted to him for improvements in Piston for Internal Combustion Motor and Process of Making the Same as set forth in the annexed specification.

Per C

And he hereby appoints Edward R. Alexander, of Hayner H. Gordon, Ouray Building, Washington, D. C., Reg. No. 6273 Reg. No. 10,822, as his Attorney, with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to receive the patent, and to transact all business in the Patent Office connected therewith.

LOUIS P. MOOERS.

SPECIFICATION

To All Whom It May Concern:

Be it known that I, Louis P. Mooers, a citizen of the United States, residing at Cincinnati, in the County of Hamilton, and State of Ohio, have invented certain new and useful improvements in and relating to Piston for Internal Combustion Motor and Process of Making the Same, of which the following is a specification.

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This invention relates to pistons for use Sub. D¹ particularly in internal combustion motors and process of making the same.

One of the objects of my invention is to produce a simple, light, durable and efficient skirted piston peculiarly adapted to meet the conditions which exist in an internal combustion motor cylinder, including the stresses and strains imposed upon the piston, principally during the explosion stroke, and by the high heat generated at this time, which heat must be efficiently and economically (a) utilized in the translation of heat into mechanical energy, and (b) that not translated into mechanical energy properly dissipated.

My present invention comprises improvements on the joint invention of myself and Edward O. Spillman disclosed in Letters Patent of the United States No. 1,092,870.

It contemplates simplifying the construction and manufacture of pistons of this patented type and of considerably lightening the construction as compared with the integral cast structure illustrated in the said patent. It further contemplates the disposition of the parts which go to make up the piston relative to each other so that pistons embodying one form of this invention may be made readily in permanent molds.

It further contemplates the idea of dissipating the heat from the head of the piston more effectively, as

—1—

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concerns the wrist pin bosses, than is the case with the construction illustrated in the said patent No. 1,092,870.

Other objects of my invention will be obvious to one skilled in the art from the description of one or more embodiments of my idea which I have herein selected to make for the purpose of a comprehensive disclosure of my improvements to one skilled in the art.

In the drawings, Fig. 1 is a longitudinal section of a piston embodying my improvements taken through the axis of the wrist pin bosses.

Fig. 2 is a section on the line 2-2, Fig. 1.

Fig. 3 is a bottom plan view looking into one of my improved pistons.

Fig. 4 is a section on the line 4-4, Fig. 1.

Fig. 5 is a longitudinal section taken through the axis of the wrist pin bosses of a modified form of piston embodying my invention.

Fig. 6 is a section on the line 6-6, Fig. 7.

Fig. 7 is a bottom plan view of the construction of piston illustrated in Fig. 5.

Fig. 8 is a side elevation of a piston casting after being taken from the mold and before any machining is done on it.

Fig. 9 is a side elevation of said piston casting after it has been externally machined and the cut made to provide the air gap between the head and the skirt section of the piston.

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Fig. 10 is a longitudinal section through the axis of the wrist pin bosses of another modified form of my invention.

Fig. 11 is a section on the line 11-11, Fig. 12.

Fig. 12 is a bottom plan view of the piston construction illustrated in Fig. 10.

per A Fig. 13 is a section on the line 13-13, Fig. 12 11.

Fig. 14 is a section on the line 14-14, Fig. 10.

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In Figs. 1 to 4 inclusive, 1 is the skirt, body or guide portion of the piston. 2 is the top or piston head. 3 are columns or connectors, preferably integrally formed with the skirt 1 and head 2 for connecting these two parts

of the piston together. The head preferably has an end wall 2' and an outer peripheral wall 2a, the latter formed preferably with suitable piston ring grooves 2b.

Intermediate its ends the guide portion or skirt 1 is preferably formed with inwardly extending, diametrically opposed, aligned, annular wrist pin bosses 1a, 1b, one of which may have a downwardly or laterally extending lug 1c formed with a screw-threaded hole to receive in the well known manner a suitable locking bolt or screw for the wrist pin (not shown).

The upper end of the guide section or skirt is separated from the head 2 by an air gap. In the drawings, purely for the purpose of illustration, this air gap is shown wider than is necessary. The presence of this air gap or air space between the upper edge of the skirt or body section 1 and the lower edge of the peripheral portion 2a of the piston head, insures that the heat absorbed by the piston head principally will be transmitted inwardly and downwardly through the columns 3 so that such portion of it as does reach the skirt or body per C by convection will do so at points below said air gap and will be reduced in amount so as to

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reduce relatively the expansion of the skirt as compared with the head, thereby permitting the skirt to be fitted relatively closely to the inner walls of the cylinder. While this air gap, as above indicated, has been shown, for the purpose of illustration, wider than necessary, it will be understood that my invention contemplates any sort of a separated relationship between the upper end of the skirt and the adjacent head 2 because of which

heat will not be transmitted efficiently or readily per E from the head to the skirt other than through a connector or connectors which join those two parts of the piston together. It will be understood that this relationship might be that of a poor mechanical fit or joint which would be a poor conductor of heat, as compared with the metal of the head 2 and connectors 3, so that such heat as did pass from the head 2 to the skirt 1 would do so principally by way of the connectors 3, rather than from the head to the upper end of the skirt 1 directly.

A piston of my improved construction may be made unusually light, durable and efficient by forming it of an integral casting of a metallic alloy having a relatively

low specific gravity, such for example as an alloy of aluminum, copper and magnesium, or any other metallic alloy of aluminum or other low specific gravity metal known by those skilled in the art to be suitable for the construction of cast, skirted pistons. As the alloys of metals of relatively low specific gravity, suitable for such purposes, have relatively high coefficients

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8B

per D ficients of expansion; some difficulty has been experienced with the use of pistons made by of them in internal combustion motors, due to the necessary clearance between the piston walls and the cylinder walls to allow for such expansion; as the result of which clearance, both "piston slapping" and "oil pumping" are likely to result, as is well known to those skilled in the art. Furthermore, liquid hydro-carbons are likely to escape past the piston into the crank case and thin down the lubricant below to an undesirable degree.

It will be understood that with a piston constructed in accordance with my invention, the sleeve or skirt 1 may be constructed so as relatively snugly to fit the inner walls of the motor cylinder, whereas the head 2 may be given a considerable amount of clearance between its outer periphery surface and the inner wall of the cylinder to allow for all necessary expansion of the head due to the high temperatures to which it is directly subjected. The fit between the skirt and the inner wall of the cylinder may be a snug sliding fit and the area of the skirt which co-acts with the inner wall of the cylinder be such as to insure against slapping or rapping of the piston against the inner wall of the cylinder. In fact objectionable piston slap, incident to the operation of numerous types of pistons, for use in internal combustion motors, substantially is eliminated, by the use of a piston constructed in accordance with my invention. Likewise oil pumping is substantially eliminated and the passage of liquid hydro-carbons from the top of the piston to the crank case is practically eliminated, resulting in minimizing of undue and trouble-

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some carbonization and undesirable smoking, among other things.

Due to the fact that the skirt or sleeve 1 is maintained relatively cool under all normal conditions, the

possibilities of scoring of the inner walls of the cylinder are practically eliminated.

The construction of a piston embodying my improvements, as hereinbefore described, may be readily carried out in permanent molds, which is not true of the construction illustrated in said Letters Patent No. 1,092,870, and I have had in mind the use of such permanent molds in the design of my said improvements.

The exterior walls of the skirt near the upper end thereof, where the connectors 3 join the skirt, may be relieved or recessed, as indicated at 1d, to allow for greater expansion at these points than will occur at other points in the same circumference of the skirt.

In the modification of my invention, illustrated in Figs. 5 to 7, inclusive, the lower piston ring groove is formed by the walls of a recess in the peripheral flange 2a of the piston head 2 and the upper end wall of the skirt 1. In this case the lower piston ring 5 may be used as and will operate as an oil wiper and will permit the oil to pass underneath it through the grooves 1e in the upper end wall of the skirt 1 and back into the crank case, thus assisting in keeping the motor from smoking. Where the piston rings are mounted as illustrated in

—7—

10B

Figs. 1 and 2, the air gap between the upper end of the skirt and the adjacent wall of the peripheral flange of the piston head will serve to provide an escape for oil back to the crank case from the cylinder walls and substantially eliminate undesirable smoking of the motor.

In the modified construction illustrated in Figs. 10 to 14, inclusive, all of the columns or connectors 3 are disposed out of alignment with the wrist pin bosses 1a. When thus disposed the amount of heat transmitted through such connectors to the wrist pin bosses will be somewhat reduced over that of a piston having the construction illustrated in Figs. 1 to 4, inclusive, as none of such connectors will transmit heat directly to either of the wrist pin bosses, there being a section of skirt between the connection of the lower end of each such connector with the skirt and the connection of the adjacent wrist pin boss with the skirt. Furthermore, with this last referred to modification the relief spaces or recesses in the outer wall of the piston adjacent the points at which the connectors 3 join the skirt will be so disposed as not to reduce any of the principal wearing surfaces of the piston against the inner wall of the cylinder.

Insert C¹

It will be noted that pistons embodying my improvements may be made relatively light in weight, which is of material advantage in assisting in reducing the weight of the reciprocating parts of the motor.

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Pistons of my improved construction will be found to operate comparatively noiselessly, smoothly and efficiently within the cylinders of internal combustion motors and with greatly reduced skirt clearances over ordinary constructions of skirted pistons.

In my improved process of making a piston **Insert** for an internal combustion motor the casting **D²** may be formed in any suitable mold as a cup-shaped article, as indicated in Fig. 8. Then the

outer surface of such casting may be suitably machined or ground so as to have the general external di-

Sub C² mensions illustrated in Fig. 9 and thereafter

the head 2, including end wall 2' and peripheral wall 2a may be separated from the skirt 1 by inserting a cutting tool at 7, so as to form the air gap between the lower end wall of the peripheral flange 2a of the head and the upper end wall of the skirt. This separation of the head from the skirt may be effected before externally surfacing the casting, if desired. Any well known type of cutting mechanism may be employed for the purpose. After the cut is made the exterior of the casting will have the general appearance illustrated in Fig. 9.

To those skilled in the art of making mechanism of the class described, many alterations in construction and widely-differing embodiments of my application will suggest themselves without departing from the spirit and scope thereof. My disclosures and the description herein are purely illustrative and are not intended to be in any sense limiting.

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What I Claim Is:

1. A piston for an internal combustion motor, comprising a skirt section having a pair of diametrically opposed wrist pin bosses integrally formed with the skirt and extending inwardly from the inner wall **Sub. C³** thereof, a head having end and peripheral walls, the lower edge of the latter being spaced from the upper edge of the skirt section by an air gap, and means extending from said end wall of said head

per A across said air gap to the most closely adjacent portions of said skirt section and connecting said parts together.

2. A piston for an internal combustion motor, comprising a skirt section having a pair of diametrically opposed wrist pin bosses integrally formed with the skirt and extending inwardly from the inner wall thereof, a head having end and peripheral walls, the lower edge of the latter being spaced from the upper edge of the skirt section by an air gap, and means integrally formed with the end wall of said head and said skirt section **per A** and extending across said air gap for and connecting the most closely adjacent portions of said parts together.

3. A piston for an internal combustion motor, comprising a skirt section having a pair of diametrically opposed wrist pin bosses integrally formed with the skirt and extending inwardly from the inner wall thereof, a head having end and peripheral walls, the lower edge of the latter being spaced from the upper edge of the skirt section by an air gap, and means disposed out of align-

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ment with said wrist pin bosses and extending across said air gap for connecting the end wall of said head and skirt section together.

4. A piston for an internal combustion motor, comprising a skirt section having a pair of diametrically opposed wrist pin bosses integrally formed with the skirt and extending inwardly from the inner wall thereof, a head having end and peripheral walls, the lower edge of the latter being spaced from the upper edge of the skirt section by an air gap, and means integrally formed with said end wall and skirt section and extending **per A** ing across said air gap for and connecting the most closely adjacent portions of said head and skirt section together.

5. A piston for an internal combustion motor, comprising a skirt section having a pair of diametrically opposed wrist pin bosses integrally formed with the skirt and extending inwardly from the inner wall thereof, a head having end and peripheral walls, the lower edge of the latter being spaced from the upper edge of the skirt section by an air gap, and columns between the head and skirt section formed integrally therewith and disposed out of longitudinal alignment with the wrist pin bosses.

6. A piston for an internal combustion motor, comprising a skirt section having a pair of diametrically opposed wrist pin bosses integrally formed with the skirt and extending inwardly from the inner wall thereof, a head having end and peripheral walls, the lower edge of the latter being spaced from the upper edge of the

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skirt section by an air gap, and connectors extending from said peripheral wall downwardly and connecting it to the inner surface of the inner circumferential wall of said skirt.

7. A piston for an internal combustion motor, comprising a skirt section having a pair of diametrically opposed wrist pin bosses integrally formed with the skirt and extending inwardly from the inner wall thereof, a head having end and peripheral walls, the lower edge of the latter being spaced from the upper edge of the skirt

section by an air gap, and connectors extending from the outer inner peripheral walls of said head and connecting said head with the inner peripheral wall of said skirt and being integrally formed with said head and skirt.

8. A piston for an internal combustion motor, comprising a skirt section having a pair of diametrically opposed wrist pin bosses integrally formed with the skirt and extending inwardly from the inner wall thereof, a head having an inner wall spaced from the adjacent upper edge of the skirt section by a relatively narrow air gap, and connectors connecting said head with the inner peripheral wall of said skirt.

9. A piston for an internal combustion motor, comprising a skirt section having a pair of diametrically opposed wrist pin bosses integrally formed with the skirt and extending inwardly from the inner wall thereof, a head having an inner wall spaced from the adjacent upper edge of the skirt section by a relatively narrow air gap, and connectors connecting said head with the inner peripheral wall of said skirt and integrally formed with said head and skirt section.

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10. A piston for an internal combustion motor comprising a head, a skirt section, there being an air gap between the upper edge of said skirt and the adjacent wall of said head and a piston ring receiving groove formed by the upper edge of said skirt and a recess in

said head, and means connecting said skirt to said head across said air gap.

11. A piston for an internal combustion motor comprising a head, a skirt section, there being an air gap between the upper edge of said skirt and the adjacent wall of said head and a piston ring receiving groove formed by the upper edge of said skirt and a recess in said head, means connecting said skirt to said head across said air gap, and a piston ring in said groove.

12. A piston for an internal combustion motor comprising a head, a skirt section, there being an air gap between the upper edge of said skirt and the adjacent wall of said head and a piston ring receiving groove formed by the upper edge of said skirt and a recess in said head, means connecting said skirt to said head across said air gap, and a piston ring in said groove, there being an oil groove in the upper edge of said skirt beneath said piston ring.

13. The process of making a piston for an internal combustion motor, which consists in forming a cup-shaped casting having a pair of diametrically opposed bosses extending inwardly from

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the inside wall of its cylindrical section and a plurality of connectors, each connector extending from the inside of the end wall of said casting a distance therefrom and having its lower end connected with said inside wall of said cylindrical section, and then separating the end wall and a portion of said cylindrical section from the remainder of the cylindrical section by cutting through said cylindrical section between the points at which the ends of said connectors are connected with the casting.

14. The process of making a piston for an internal combustion motor, which consists in forming a cup-shaped casting having a pair of diametrically opposed bosses extending inwardly from the inside wall of its cylindrical section and a plurality of connectors, each connector extending from the inside of the end wall of said casting a distance therefrom and having its lower end connected with said inside wall of said cylindrical section at a point out of alignment with said inwardly extending bosses, and then cutting an opening through said cylindrical section above said wrist pin bosses and between the ends of said connectors.

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IN TESTIMONY WHEREOF I affix my signature, in the presence of two witnesses.

LOUIS P. MOOERS.

Witnesses:

STANLEY ZULINSKI,
JOHN M. WALTER.

OATH

STATE OF OHIO
COUNTY OF HAMILTON } ss.

Louis P. Mooers, the above named petitioner, being duly sworn, deposes and says, that he is a citizen of the United States, and resident of Cincinnati, in the County of Hamilton, and State of Ohio; that he verily believes himself to be the original, first and sole inventor of the improvements in Piston for Internal Combustion Motor and Process of Making the Same described and claimed in the annexed specification; that he does not know and does not believe that the same was ever known or used before his invention or discovery thereof, or patented or described in any printed publication in any country before his invention or discovery thereof, or more than two years prior to this application, or in public use or on sale in the United States for more than two years prior to this application; that said invention has not been patented in any country foreign to the United States on an application filed by him or his legal representatives or assigns more than twelve months prior to this application; and that no application for patent on said improvements has been filed by him or his representatives or assigns in any country foreign to the United States.

LOUIS P. MOOERS.

Sworn to, subscribed and acknowledged, before me this 31 day of May, 1917.

(Seal)

G. M. MASLER,
Notary Public.

Mail Room

Division 12, Paper No. 2

Jun 2 1917

Jun 5 1917

U. S. Patent Office

U. S. Patent Office

IN THE UNITED STATES PATENT OFFICE

Application of
Louis P. Mooers

"Piston for Internal Combustion Motor
and Process of Making the Same.

Filed June 2, 1917

Hon. Commissioner of Patents:

Sir:

The attention of the Examiner to whom this application which is herewith submitted, is assigned, is respectfully called to the fact that this application contains subject matter which interferes with an application filed by Edward O. Spillman now pending in the Office, and an interference is accordingly requested.

Respectfully Submitted,

LOUIS P. MOOERS,
by HAYNER H. GORDON,
his attorney.

June 2, 1917

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DEPARTMENT OF THE INTERIOR

UNITED STATES PATENT OFFICE

Washington July 20, 1917.

Mailed " " "

Hayner H. Gordon,
Ouray Bld'g.,
Washington, D. C.

Please find below a communication from the Examiner in charge of the application of L. P. Mooers, S. N. 172,380, filed June 2, 1917, for Piston for Internal Combustion Motor and Process of Making the same.

THOMAS E. ROBERTSON,
Thomas Ewing,

Commissioner of Patents.

This case has been examined.

Page 3, line 7, "Fig. 12" should be —*Fig. 11*—.

Page 6, line 15, change "periphery" to —*surface*—.

Claims 3 and 5 are specific to the modification shown in Figs. 10 to 14, inclusive, whereas claims 10, 11 and 12 are specific to Figs. 5, 6 and 7.

Election of species is required.

Claims 1, 2, 4, 6, 7, 8 and 9 are rejected on the French patent to

Chenard, *et al.*, 468,595, Apr. 28, 1914, 121-104.

Claims 13 and 14 are improper process claims.

They merely define a structure clearly met by the French patent above cited.

The patents to

Franquist, 1,153,902, Sept. 21, 1915, 74-85; and

Spillman, 1,229,540, June 12, 1917, " " ;
are made of record.

A. B. REAVIS,

Act'g. Exr. Div. 12.

N

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Application Div.
U. S. Patent Office
Jul 10 1918

A

Division 12, Paper No. 4
U. S. Patent Office
Jul 13 1918 A

U. S. Patent Office
Jul 12 1918
Division XVIII

U. S. Patent Office
Jul 11 1918
Division XXVIII.

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

In the matter of the application of Louis P. Mooers, Ser. No. 172,380, filed June 2, 1917, for Piston for Internal Combustion Motor and Process of Making the Same.

Replying to Office Action dated July 20, 1917:

Page 3, line 7, change the character "12" to —*11*—.

Page 6, line 15, change the word "periphery" to —*surface*—.

Claim 1, next to the last line, after the word "to" insert the words —*the most closely adjacent portions of*—.

Claim 2, next to the last line, cancel the word "for" and insert the word —*and*—; same line, after the word "connecting" insert the words —*the most closely adjacent portions of*—.

Claim 4, last line, cancel the word "for" and insert the word *—and—*; same line, after the word "connecting" insert the words *—the most closely adjacent portions of—*.

Claim 6, last line, after the word "connecting" insert the words *—it to the inner surface of the inner circumferential wall of—*.

Claim 7, line 7, change the word "outer" to *—inner—*; line 8, change the word "walls" to *—wall—*; same line, after the word "with" insert the words *—the inner peripheral wall of—*.

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Claim 8, last line, after the word "with" insert the words *—the inner peripheral wall of—*.

Claim 9, next to the last line, after the word "with" insert the words *—the inner peripheral wall of—*.

Cancel claims 13 and 14.

A reconsideration of the claims as amended is respectfully requested. The importance of what may appear to be relatively slight differences in piston construction is now fully recognized by the most advanced thermodynamics. In fact, some of the principal efficiencies recently attained in the operation of internal combustion engines have been largely due to piston construction.

The Chenard, et al. patent of reference discloses a construction in which the webs d are connected to the inner ends of the wrist pin bosses and not to the inner peripheral wall of the skirt. The disadvantage of the French patented construction lies in that substantially all of the heat from the head which is conducted by means of the webs d will be delivered to the wrist pin bosses, and not evenly distributed at that. This is an objection which applicant's construction avoids and was intended to avoid. Again, the core material and construction required in order to produce the Chenard et al. piston is distinctly more complicated than that required to produce applicant's. The amendments to the claims patentably distinguish the subject-matter.

With reference to claims 3 and 5, attention is directed to the fact that they are the only species of connector location claimed. Division should not be requested under these circumstances.

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Claims 10, 11 and 12, on the other hand, relate to a species of piston ring groove construction and not to

connectors. They are the only species presented relative to any piston ring groove construction. The connector construction is applicable to either ring groove construction. It is believed that all of the claims as presented are properly presented in one application. A reconsideration on this point is respectfully asked.

It is not understood that the specification of the French patent discloses the process called for in claims 13 and 14. As such subject-matter is undoubtedly divisional, the claims have been cancelled, the rights of the applicant being reserved.

The specification was originally drawn with the Franquist and Spillman patented constructions in mind and the claims are believed to be clearly differentiated patentably therefrom.

Respectfully submitted,

LOUIS P. MOOERS,

By HAYNER H. GORDON,

Attorney.

Cleveland, Ohio.
July 8 10, 1918.

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DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Washington

Sept. 28, 1918.

Mailed

" " "

Hayner H. Gordon,
Ouray Bldg.,
Washington, D. C.

Please find below a communication from the Examiner in charge of the application of Louis P. Mooers—for Piston for Internal Combustion Motor and Process of Making the Same—Filed June 2, 1917—Serial No. 172330.

~~Thomas F. Robertson,~~

James T. Newton,

Commissioner of Patents.

This case has been considered in view of the amendment of July 10, 1918.

Claims 1, 2, 4, 6, 7, 8, 9, 10 and 11 are rejected on patent to Riedler 1,259,292 Mar. 12, 1918 (X74-85)

Claim 12 is rejected on patent to Riedler, *supra* in view of oil groove shown in patent to Franquist of record or to

Rohn 1,232,846 July 10, 1917 (X74-85)

According to the decision in *Ex parte*

Welch 93 O. G. 2104 all claims should be readable on a single modification.

To conform to this ruling the drawings on sheet 2 should be corrected so that the columns "3" of Figure 5 to 9 would be shifted so as to be out of alignment with the pin bosses such as shown in Figures 10 to 14.

After this correction is made all the claims will be readable on Figures 5 to 9.

A. B. REAVIS,
Act'g. Exr. Div. 12.

B.V.Z.

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Mail Room
Sep 26 1919
U. S. Patent Office

Division 12, Paper No. 6
Sep 26 1919
U. S. Patent Office,

U. S. Patent Office,
Sep 27 1919
Division XXVIII.

B
and
Affidavit

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

In the matter of the application of Louis B. Mooers, for Piston for Internal Combustion Motor and Process of Making Same, filed June 2, 1917, Ser. No. 172,380:

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Replying to Office action of September 28, 1918:

The patent to Riedler has been carefully considered. It is submitted that the construction therein shown is not comprehensive of the subject-matter of the claims. As we interpret the Riedler construction it is merely a trunk piston with two holes e through it. The lower edge of the head is not spaced from the upper edge of the skirt by an air gap in the sense specified in the rejected claim. The side elevations of the walls of the aperture indicated that

the skirt is indented and not that there is a distinct air gap between the upper edge of the skirt and the lower end of the head section with means extending from the *end wall* or head for connecting the head to the skirt and conducting heat from the head across the air gap to the skirt. However, applicant's invention was made prior to the filing date of the Riedler application in the United States. Riedler does not claim applicant's invention and if Riedler has a corresponding German patent, it cannot be taken advantage of in the present instance to carry back Riedler's date with respect to subject-matter not claimed by him.

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Applicant files herewith an affidavit under Rule 75 carrying his date of invention back of the filing date of the Riedler patent and respectfully requests the reconsideration of claims 1, 2, 4, 6, 7, 8, 9, 10 and 11.

Cancel claim 12.

As to the requirement for correction to Figures 5 to 9 of the drawings, it is respectfully requested that this objection be not insisted upon at the present stage of the prosecution, but only after the scope of allowable claims is conclusively established.

Respectfully submitted,

LOUIS P. MOOERS,

By HAYNER H. GORDON,

Attorney.

Washington, D. C.
September 26, 1919.

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Louis P. Mooers,
Piston for Internal Combustion Motor
and Process of Making the Same,

Filed June 2, 1917,
Ser. No. 172,380.

OATH

STATE OF OHIO }
COUNTY OF CUYAHOGA } ss.

LOUIS P. MOOERS, being duly sworn, deposes and says that he is the Louis P. Mooers who filed the above entitled application relating to Piston for Internal Combustion Motor; that he is a citizen of the United States and resident of Cincinnati in the County of Hamilton and

State of Ohio; that he verily believes himself to be the original, first and sole inventor of the improvement in Piston for Internal Combustion Motor shown and described in the above entitled application;

That the subject-matter set forth in claims 1, 2, 4, 6, 7, 8, 9, 10 and 11 was a part of his invention and was invented by him prior to the 31st day of January, 1917; that prior to the 31st day of January, 1917, he fully disclosed his said invention to E. E. Allyne, of Cleveland, Ohio, and others; that prior to January 31st, 1917, at the request of the said E. E. Allyne, he made full-sized working drawings of the said invention and sent the same from Cincinnati, Ohio, to the said E. E. Allyne at Cleveland, Ohio; that the photostat copy hereto attached, made a part hereof and marked "Exhibit A," is a photograph of the said drawings; that owing to conditions entirely beyond affiant's control, namely, those existing during

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and imposed by the war, affiant was unable to produce pistons embodying his idea, it being essential that they should be made out of aluminum and the plant in which the said E. E. Allyne was interested, where such pistons could be made, being wholly engaged in war work; that applicant made the invention at the request of the said E. E. Allyne for a piston which could be made of aluminum in a so-called permanent mold and that the said E. E. Allyne was president of the only Company in this country, within applicant's knowledge, where such molds were made; that with all reasonable dispatch after the armistice the said E. E. Allyne had pistons embodying applicant's said invention made and successfully tested at Cleveland, Ohio, and that affiant took all reasonable steps, under existing circumstances, to demonstrate the practicability of his idea and to reduce the same to practice; that the war conditions with which he had to contend prior to June 2, 1917, the date of the filing of his application, were such as to preclude earlier reduction to practice of his invention.

LOUIS P. MOOERS.

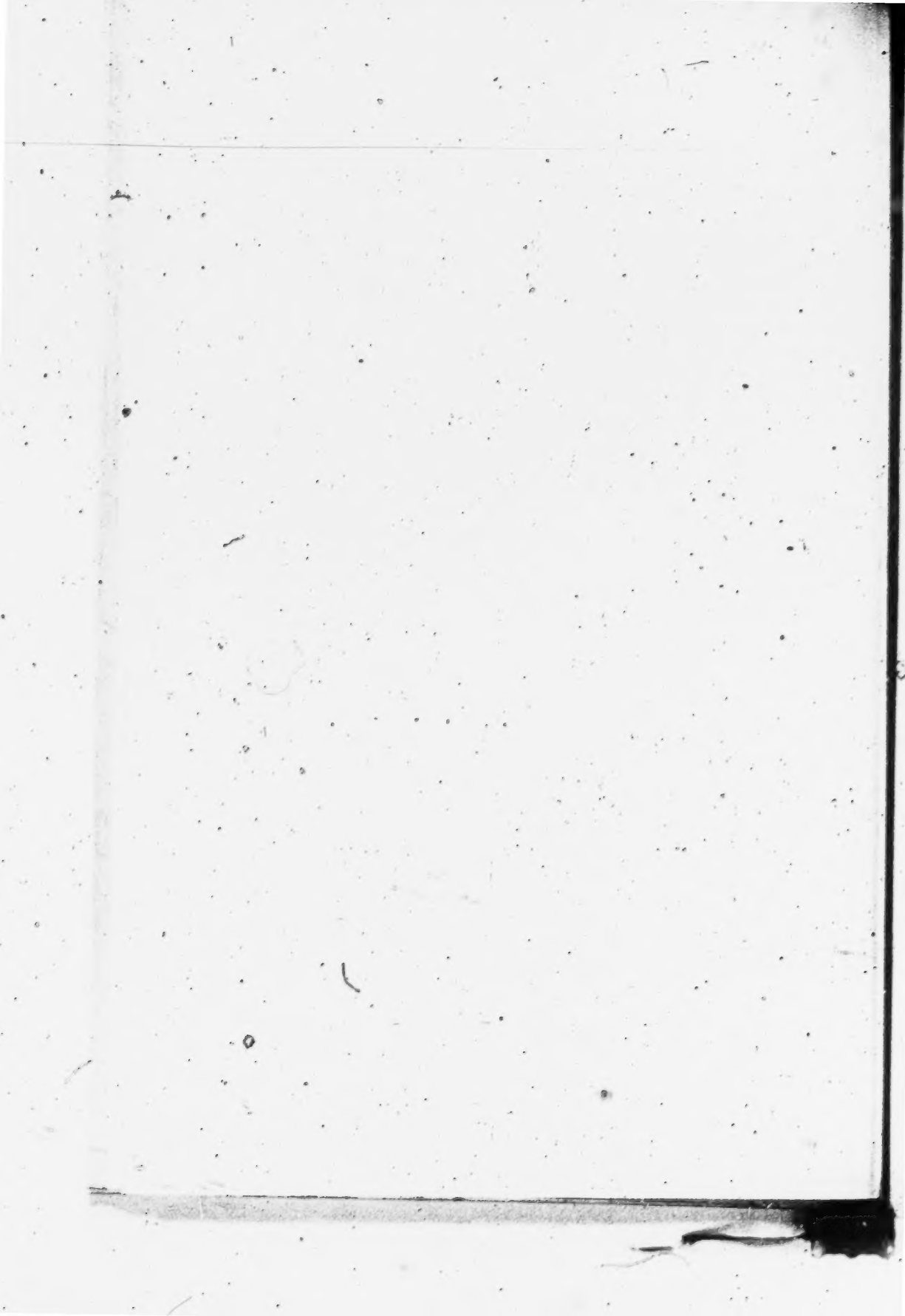
Sworn to and subscribed before me, a Notary Public, at Cleveland, County of Cuyahoga and State of Ohio, this 15th day of September, 1919.

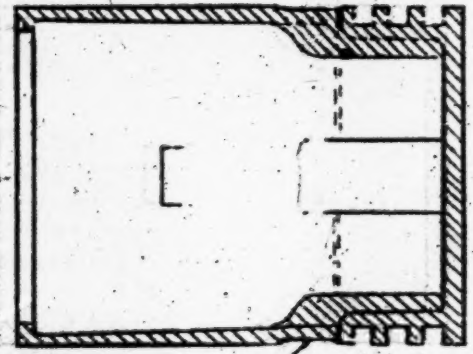
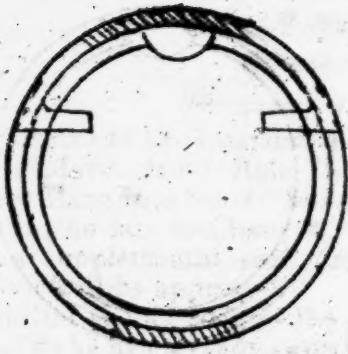
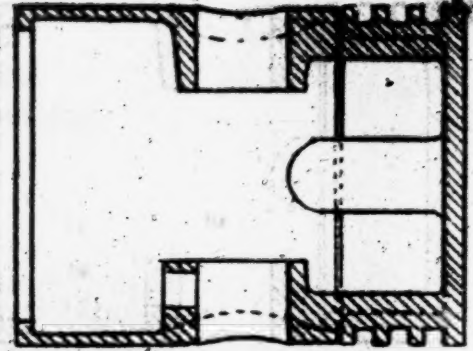
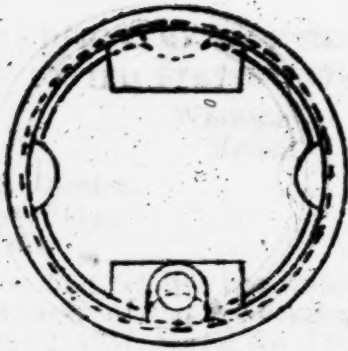
(Notarial Seal)

L. S. LOMMASSON,
Notary Public.

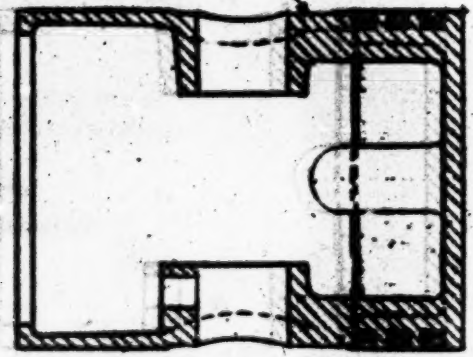
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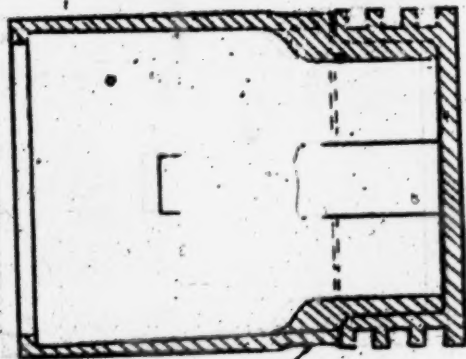
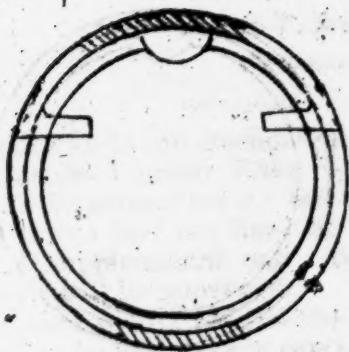
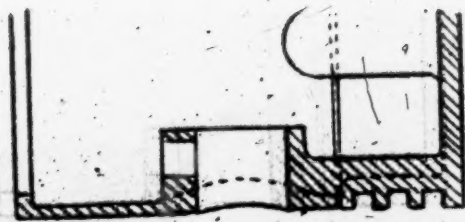
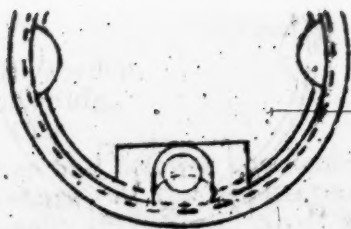
27B



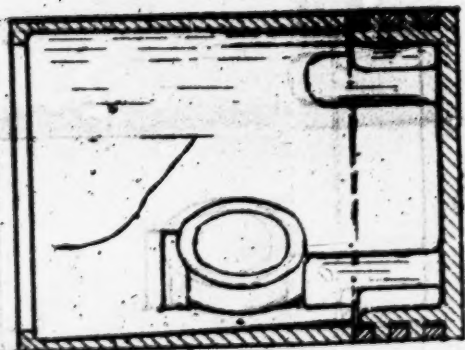
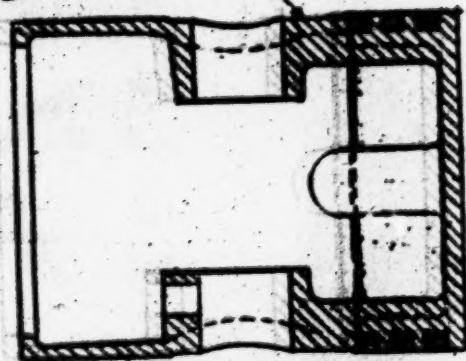


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DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Washington January 6, 1920.
Mailed " " "

Hayner H. Gordon,
Ouray Bldg.,
City.

Please find below a communication from the EXAM-
INER in charge of the application of Louis P. Mooers,
Filed June 2, 1917, Serial No. 172,380, Piston For Inter-
nal Combustion Motor & Process of Making the Same.

~~Thomas F. Rosenstock,~~

James T. Newton,

Commissioner of Patents.

Responsive to the amendment of Sept. 26, 1919.

The affidavit under Rule 75 has been disapproved
by the Law Examiner for it "fails to make the averments
specified in the last ten lines of the rule. If applicant
will file a supplemental oath making these averments
the affidavit will be approved."

Applicant should restrict the title of his invention to
the article as he has already cancelled the process claims.

Claim 1 is rejected upon the German patent to

Czermak, 67,264, June 14, 1892 (1 sheet) (74-108)

Claims 2 to 9 inclusive are rejected upon the French
patent to

Delaunay, 480,644, Jan. 10, 1916 (2 sheets)
(74-108)

Claims 10 and 11 are allowable over the above refer-
ences but are again rejected upon the patent to Riedler,
of record.

P. P. PIERCE,

Examiner.

B. V. Z.

29B

2000

Defendants' Exhibit 4-L, File Wrapper

Mail Room
Jan 4 1921
U. S. Patent Office

Division 12, Paper No. 8
Jan 6 1921
U. S. Patent Office

C &
Affidavit

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Clk

IN THE UNITED STATES PATENT OFFICE

In re application of
Louis P. Mooers,
PISTON FOR INTERNAL COMBUSTION
MOTOR AND PROCESS OF MAKING SAME
Serial No. 172,380,
Filed June 2, 1917.

Division 12
Room 322.

Hon. Commissioner of Patents,

Sir:

C In response to the Office action of January 6, 1920, applicant amends as follows:

In the petition and in the preamble to the specification, amend the title of the invention by striking out the words "and Process of Making the Same."

Page 4, next to last line, change "convection" to —conduction—.

Page 5, line 4 from the bottom, after "aluminum" insert —or other low specific gravity metal—.

Page 8, after the paragraph ending in line 5 from the bottom, insert the following:

—In addition, with all the connectors 3 disposed in the regions of the pin bosses, as disclosed in Figs. 10 to 14, inclusive, the piston is especially well adapted to run with a close fit of the guide section 1 in the **C¹** cylinder. It will be observed, on reference to Figs. 10, 13 and 14, that said guide section has a circumferential zone or belt extending from its upper end down to and below the pin boss openings that is characterized by a short outer diameter in line with the bosses and a long

—1—

30B

outer diameter at right angles to said bosses, this being due to the above described relief of the piston adjacent the bosses and the connectors 3. Thus when this top

zone of the guide heats up the resulting expansion can be accommodated by outward movement of the relieved part of the wall and danger of seizing, as a result of close engagement between the unrelieved part of said wall and the cylinder, is obviated. This action, of course, is made possible by the fact that the upper end of the guide section is not continuously joined to the head section but, being separated from the head by the air gap, is free to take form in a measure independent of the head. The bottom part of the guide section does not attain so high a temperature as said upper zone so that no special provision for the expansion of said lower part is required.—

Page 9, in lines 9, 10 and 11, strike out "Then the outer surface of such casting may be suitably machined or ground so as to have the general external dimensions illustrated in Fig. 9 and thereafter" and insert in lieu thereof the following:

—While the invention is not limited to any particular method of casting it is to be observed that the improved construction is especially well adapted for C² casting in a permanent mold, the form and arrangement of the connectors 3 relative to the inner piston walls and the absence of any obstruction that would prevent free access to said inner walls from the open end of the piston, obviating all difficulties incident to coring. The casting being made, its outer surface may be suitably machined or ground so as to have the general ex-

—2—

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ternal form illustrated in Fig. 9, or in Figs. 10, 13 and 14, and thereafter—

Cancel the present claims, Nos. 1 to 11, inclusive, and insert in lieu thereof the following:

—1. An integrally cast piston comprising a head section having end and peripheral walls, a guide section separated at its upper edge from the lower end of the peripheral wall of said head section by an air gap and provided with diametrically opposite wrist pin bosses, and section connectors which spring from the inner surface of the peripheral wall of the head section across said air gap to the upper part per D of the guide section in the regions of said wrist pin bosses, the interior surface of the head and

Insert guide sections being freely accessible from the
D³ open end of the piston.

2. An integrally cast piston comprising a head section having end and peripheral walls, a guide section separated at its upper edge from the lower end of the peripheral wall of said head section by an air gap and provided with diametrically opposite wrist pin bosses, and section connectors which spring from the inner surface of the peripheral wall of the head section across said air gap to the upper part of the guide section in the regions of said wrist pin bosses, the
per D wall of said guide section being exteriorly relieved opposite said connectors.

3. A piston comprising a head section having end and peripheral walls, a guide section provided with diametrically opposite wrist pin bosses, and means connect-

●

—3—

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ing the head and guide sections in the regions of said bosses, the upper edge of the guide section and the lower edge of the head being separated by an air gap
per D in the regions between said connecting means, and the guide section being exteriorly relieved in the regions of the bosses and connecting means.

4. An integrally cast piston comprising a head section having end and peripheral walls, a guide section provided with diametrically opposite wrist pin bosses, and means connecting the head and guide sections in the regions of said bosses, the upper edge of the guide section and the lower edge of the head being separated by an air gap in the regions between said connecting means and the guide section being exteriorly relieved in the regions of the bosses and connecting means.

5. A piston for an internal combustion engine comprising a guide section having a pair of diametrically opposed wrist pin bosses integrally formed therewith, a head having end and peripheral walls the lower edge of the latter being spaced from the upper edge of said guide section by a practically continuous non-conducting air gap, and connectors which extend from
per D said peripheral walls downwardly to said guide section and are integrally formed with said peripheral wall and guide section, said guide section being exteriorly relieved in the regions of said connecting means.

—4—

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6. An integral cast piston for an internal combustion engine comprising a guide section having a pair of diametrically opposed wrist pin bosses, a head section having end and peripheral walls, the lower edge of the latter being separated from the upper edge of said guide section by a relatively narrow air gap extending practically around the piston, and connectors which spring from said peripheral wall of said head and the upper end of said guide section and bridge said air gap, D¹ said guide section being exteriorly relieved in the regions of said connecting means.

7. An integral cast piston for an internal combustion engine comprising a guide section having a pair of diametrically opposed wrist pin bosses, a head section having end and peripheral walls, the lower edge of the latter being separated from the upper edge of said guide section by a relatively narrow air gap extending practically around the piston, and connectors which spring from said peripheral wall of said head and the upper end of said guide section in the regions of said wrist pin bosses and bridge said air gap, said guide section being exteriorly relieved in ever-continuous areas embracing the regions of said bosses and connecting means.

8. A piston for an internal combustion motor, comprising a skirt guide section having a pair of diametrically opposed wrist pin bosses integrally formed with the skirt and extending inwardly from the inner wall thereof, guide section a head having end and peripheral walls, the lower edge of the latter being spaced separated from the upper edge of the skirt guide section by an air gap, and means disposed out of alignment with the axes of said wrist pin

—5—

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bosses and extending across said air gap and providing the sole means of connection between said head and guide section.

9. A piston for an internal combustion motor, comprising a skirt guide section having a pair of diametrically opposed wrist pin bosses integrally formed with the skirt and extending inwardly from the inner wall thereof, guide section a head having end and peripheral walls, the lower edge of the latter being spaced separated

per E rated from the upper edge of the skirt guide section by an air gap, and columns between the Sub. E² head and skirt guide section formed integrally per D therewith disposed out of longitudinal alignment with the axes of the wrist pin bores, and providing the sole means of connection between said head and guide section.—

Insert Applicant files herewith a supplemental affidavit which is believed to meet the requirements noted in the last Office letter.

The claims have been carefully rewritten in view of the Examiner's citations and the conference had and are believed to now clearly distinguish from the prior art, the marked differences between applicant's piston and those disclosed in the patents cited being, of course, quite obvious. These differences, in the case of the French patent No. 480,644, upon which the Examiner principally relied, are distinctly notable. Applicant's piston is especially adapted to be made of aluminum or other light alloys and to be cast in a permanent mold. In permanent mold work, of course, the problem of coring is of vital importance. Obviously it would be

—6—

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quite impossible to cast the Delaunay piston in a permanent mold. In applicant's piston the connectors 3 spring from the inner surfaces of the side walls of the head and the guide and the interior surfaces of the piston are freely accessible from the open end of the piston so that the piston can be cast in permanent mold practically as easily as the standard form of trunk piston. These features are believed to be clearly brought out in claim one. The Delaunay piston is clearly a piston developed for the function of controlling the flow of gases to the combustion chamber. It is not of the same type or character as applicant's, which as stated in the specification, is an improvement on pistons of the character disclosed in Spillman & Mooers patent No. 1,092,870. The problem has been with the introduction of aluminum alloys to conserve the metal in piston manufacture as much as possible and to produce a piston which is peculiarly adapted to fulfill in an advantageous manner the various requirements made of it in an internal combustion engine. Where volume production is taken into consideration and efficiency and economy of manufacture becomes an absolute necessity, it will be found that applicant's invention

herein claimed has distinct advantages over any constructions of reference and any of which applicant has knowledge. The difficulty in producing a commercially satisfactory piston, particularly of an aluminum alloy, is widely known in the engineering profession. The problem has been one of the most serious confronting automotive engineers for some years. The simple solution which applicant has hit upon in this invention has proven its commercial merit and it is believed that the claims patentably distinguish from the references without any

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question of a doubt.

Claim 2 specifies the relation of the connectors to the head and guide sections and also the relief of the guide sections adjacent the connectors.

The significance of claims 3 to 7, inclusive, will readily be understood from a reading of the explanatory statement inserted on page 8 of the specification.

Claims 8 and 9 specifically set forth that the connectors are not in alignment with the wrist pin bosses and form the sole connections between the parts.

Respectfully submitted,

LOUIS P. MOOERS,

By HAYNER H. GORDON,

Attorney.

Washington, D. C.
January 3, 1921.

37B

Mail Room

Jan 4 1921

U. S. Patent Office

Louis P. Mooers,

Piston for Internal Combustion Motor
and Process of Making the Same,

Filed June 2, 1917,

Ser. No. 172,380.

OATH

STATE OF OHIO,

COUNTY OF HAMILTON }

ss.

LOUIS P. MOOERS, being duly sworn, deposes and says that he is the Louis P. Mooers who filed the above entitled application relating to Piston for Internal Com-

bustion Motor; that he is a citizen of the United States and resident of Cincinnati in the County of Hamilton and State of Ohio; that he verily believes himself to be the original, first and sole inventor of the improvement in Piston for Internal Combustion Motor shown and described in the above entitled application;

That the subject-matter set forth in claims 1, 2, 4, 6, 7, 8, 9, 10 and 11 was a part of his invention and was invented by him prior to the 31st day of January, 1917; that prior to the 31st day of January, 1917, he fully disclosed his said invention to E. E. Allyne, of Cleveland, Ohio, and others; that prior to January 31st, 1917, at the request of the said E. E. Allyne, he made full-sized working drawings of the said invention and sent the same from Cincinnati, Ohio, to the said E. E. Allyne at Cleveland, Ohio; that the photostat copy marked "Exhibit A," attached to and made a part of my affidavit dated Sep. 15, 1919 and filed therewith in the above entitled application, is a photograph of said drawings; that owing to conditions entirely beyond affiant's control, namely, those existing during and imposed by the war, affiant was

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unable to produce pistons embodying his idea, it being essential that they should be made out of aluminum and the plan in which the said E. E. Allyne was interested, where such pistons could be made, being wholly engaged in war work; that applicant made the invention at the request of the said E. E. Allyne for a piston which could be made of aluminum in a so-called permanent mold and that the said E. E. Allyne was president of the only Company in this country, within applicant's knowledge, where such molds were made; that with all reasonable dispatch after the armistice the said E. E. Allyne had pistons embodying applicant's said invention made and successfully tested at Cleveland, Ohio, and that affiant took all reasonable steps, under existing circumstances, to demonstrate the practicability of his idea and to reduce the same to practice; that the war conditions with which he had to contend prior to June 2, 1917, the date of the filing of his application, were such as to preclude earlier reduction to practice of his invention; that he does not know and does not believe that the invention has been in public use or on sale in this country, or patented or described in a printed publication in this or any foreign country for more than two years prior to this application; and that he has never abandoned the said invention.

LOUIS P. MOORES.

Sworn to and subscribed before me, a Notary Public, at Cincinnati, County of Hamilton and State of Ohio, this 17th day of January, 1920.

ANTHONY BLISTAIN,
Notary Public.
Hamilton County, Ohio
My Commission Expires
Oct. 13, 1921,

(Seal)

APPROVED,
March 3, 1921
Under Order 2255.

F. A. HOSTETLER,
Law Examiner.

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Account

Division 12, Paper No. 8 $\frac{1}{2}$
Apr 21 1921
U. S. Patent Office

UNITED STATES PATENT OFFICE

Application of
LOUIS P. MOOERS,

"Piston for Internal Combustion
Motor and Process for Making
the Same,"

Attention:
Official Draftsman.

Serial No. 172,380,
Filed June 2, 1917.

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

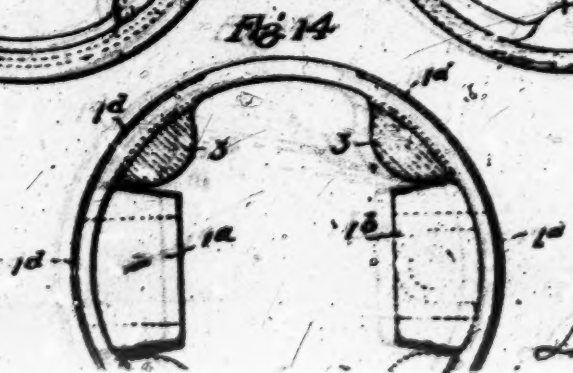
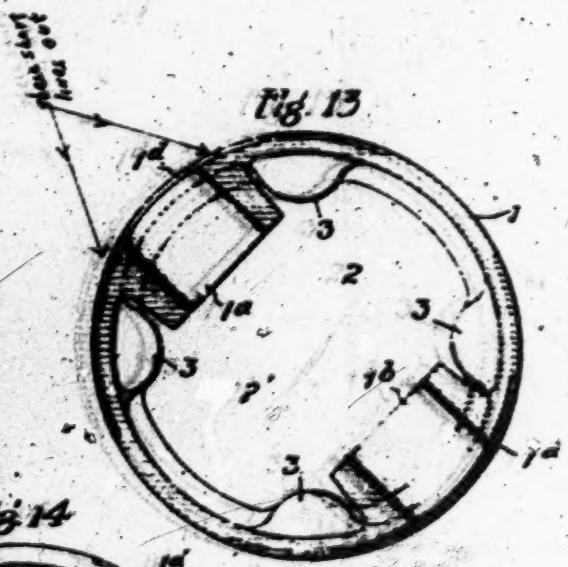
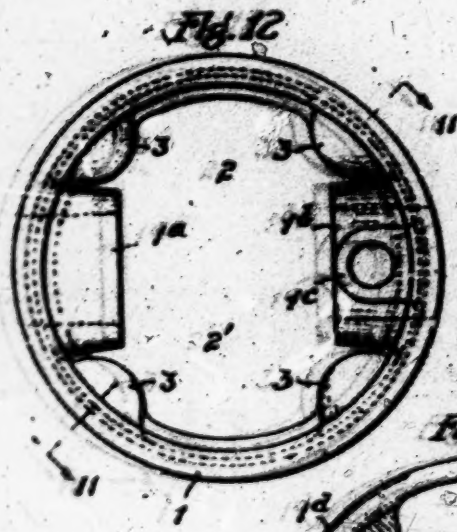
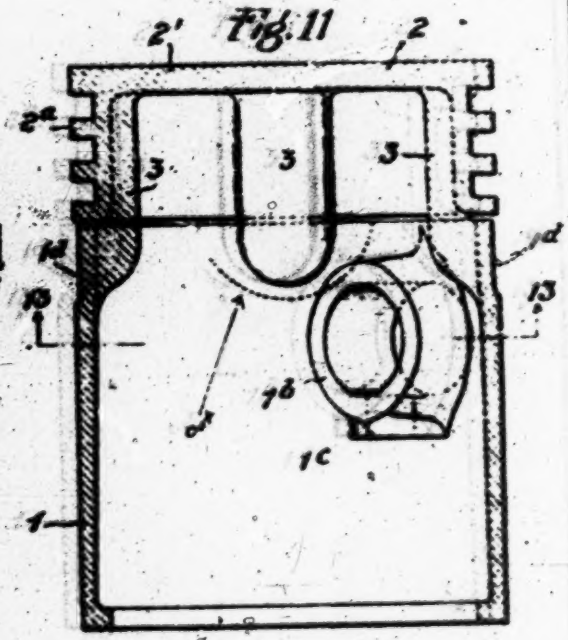
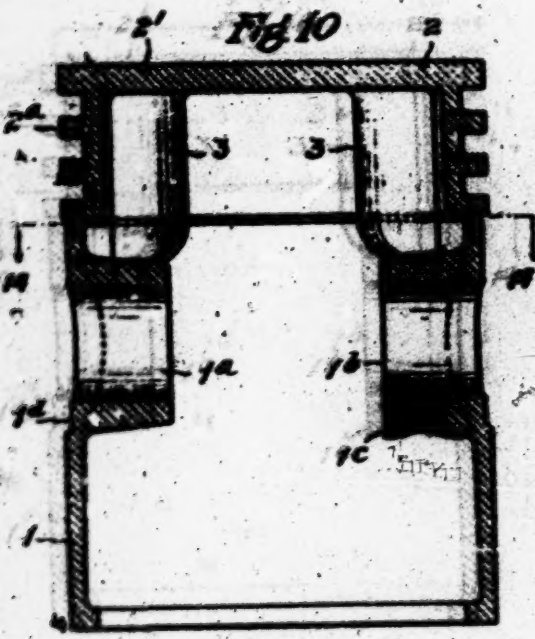
Enclosed please find a print of a drawing in the above entitled application. Please instruct the Official draftsman to make corrections on Sheet 3, Figures 11 and 13, of the drawings as indicated on the accompanying print. Charge the cost of the same to the account of Gordon & Stewart.

Respectfully,

LOUIS P. MOOERS,
By HAYNER H. GORDON,
Attorney.

Washington, D. C.
March 1, 1921.

40B



Inventor
Louis P. Harris

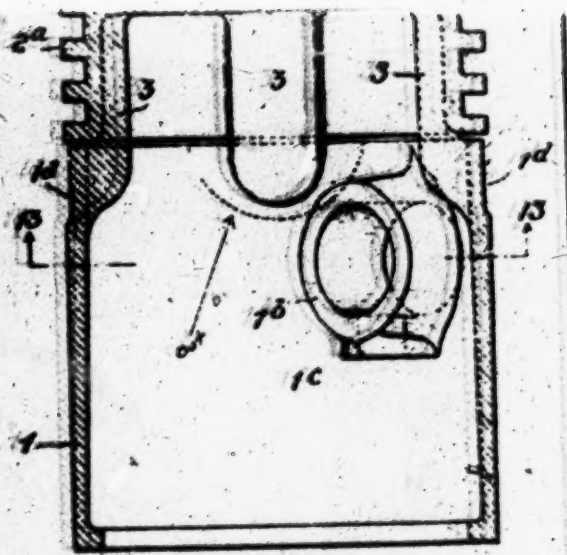
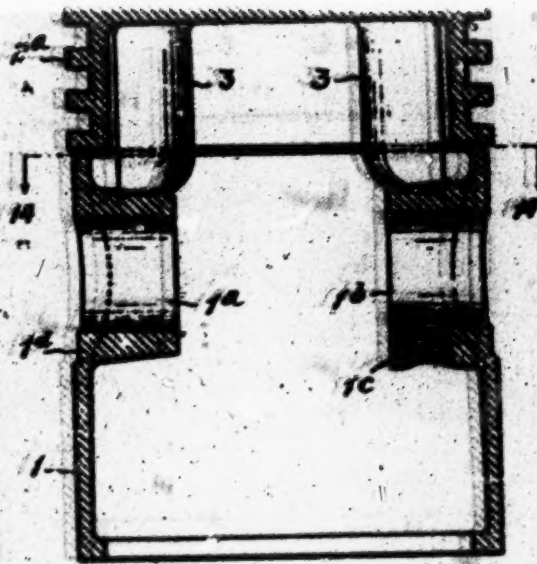


Fig. 12

Fig. 13

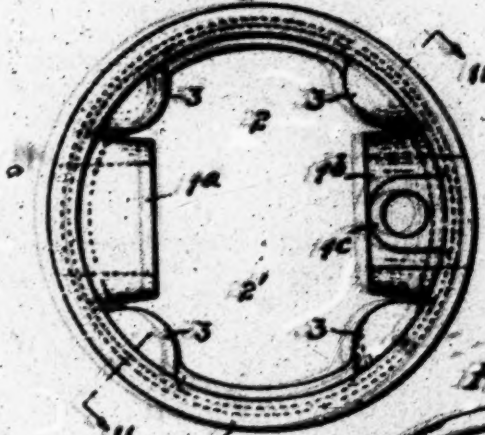
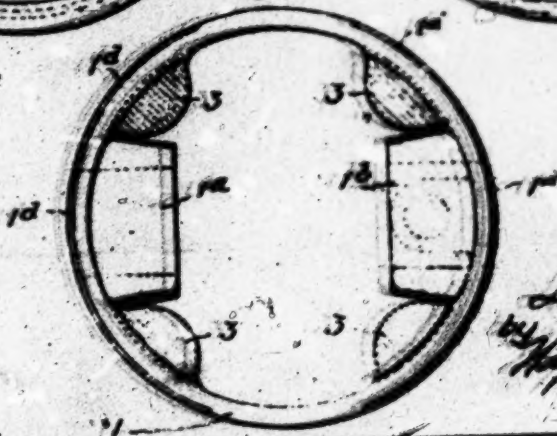
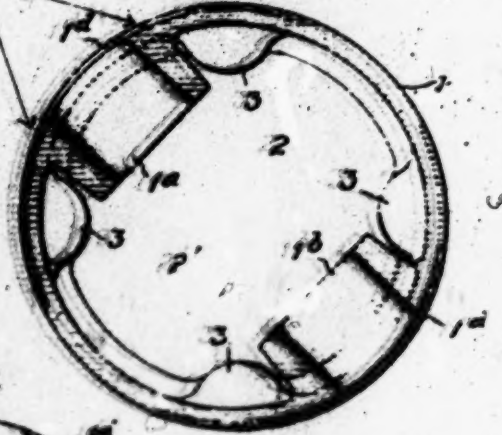


Fig. 14



Inventor:
Louis P. Hays,
by
Hayes H. Gordon

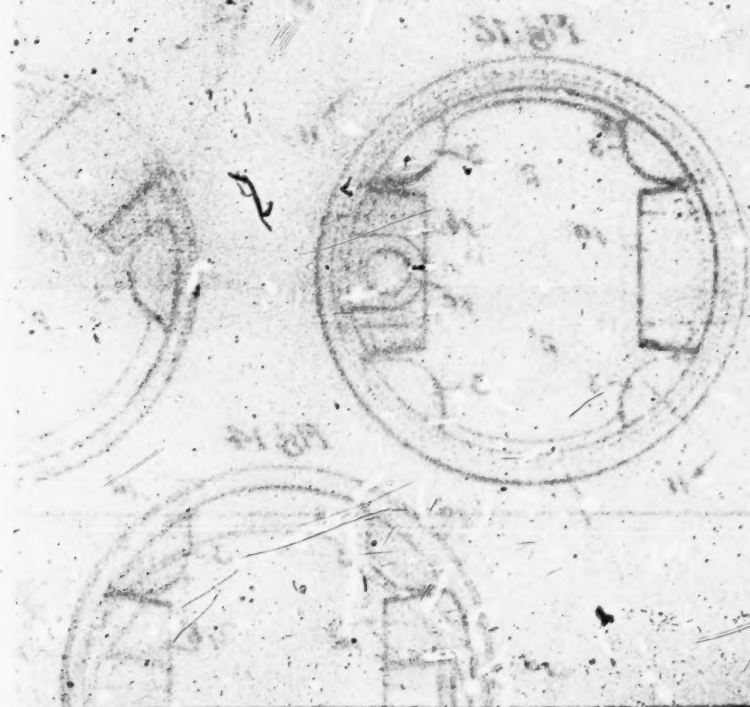
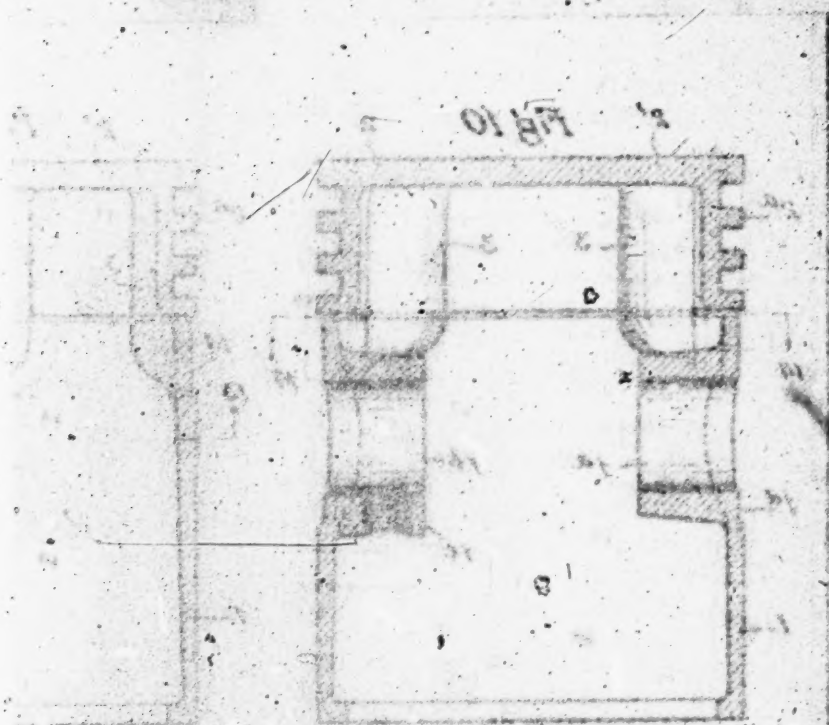


Fig. 10

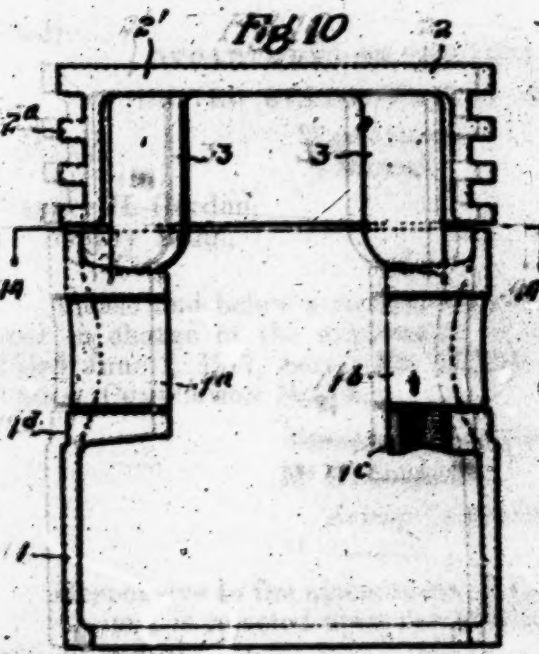


Fig. 11

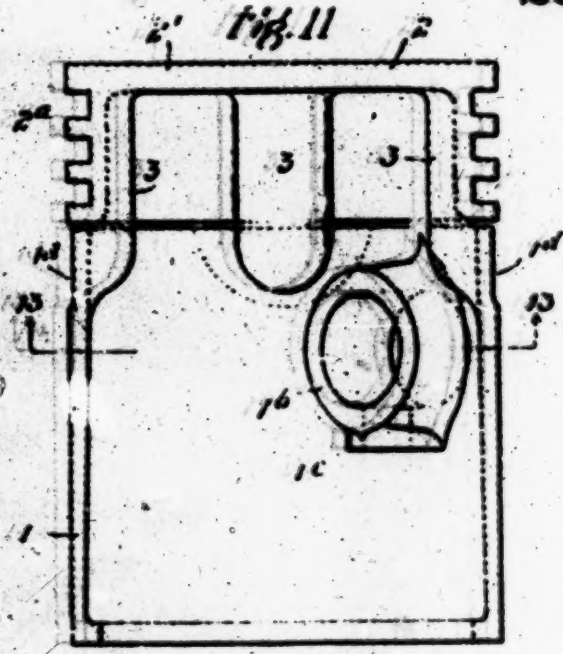


Fig. 12

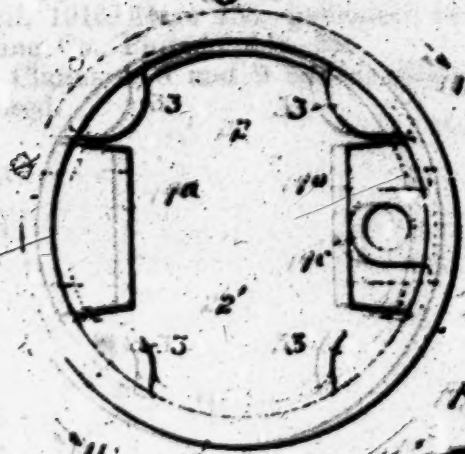


Fig. 13

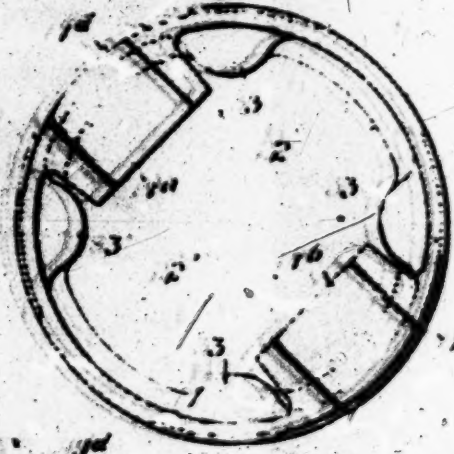
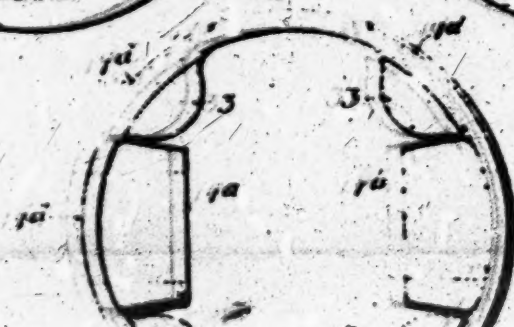
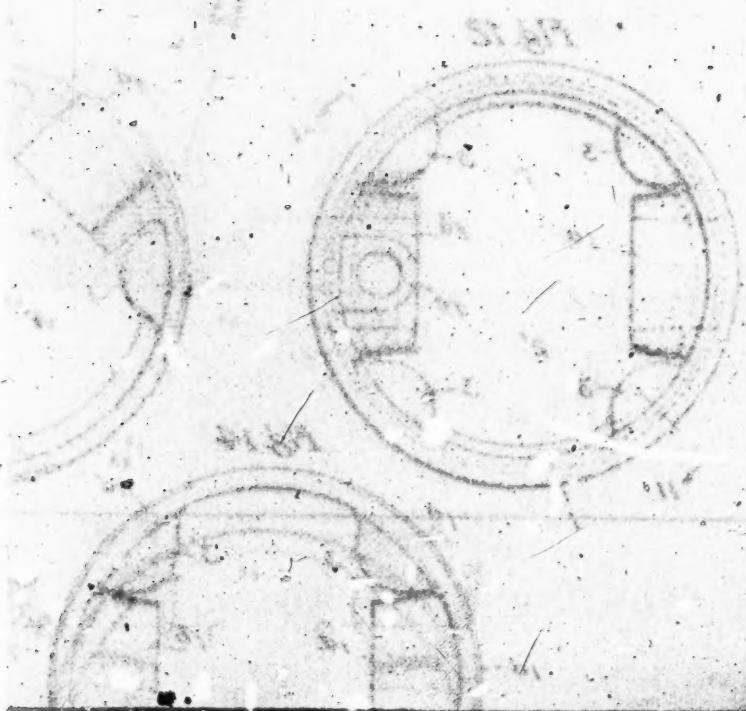
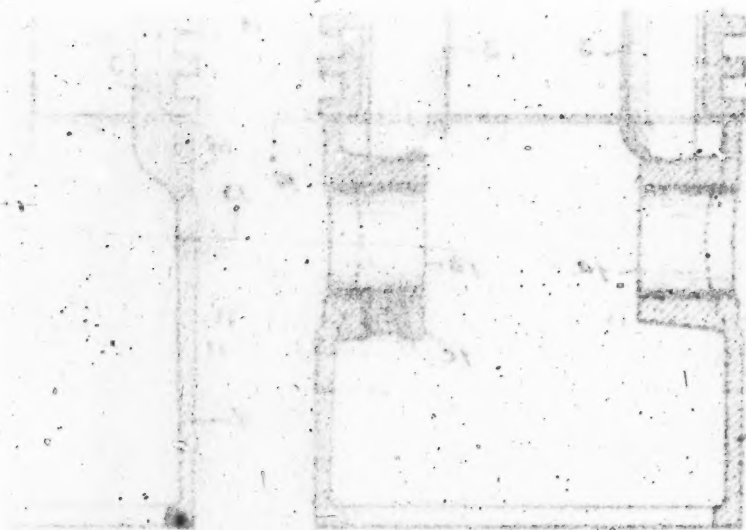


Fig. 14



Inventor
 and Attorney



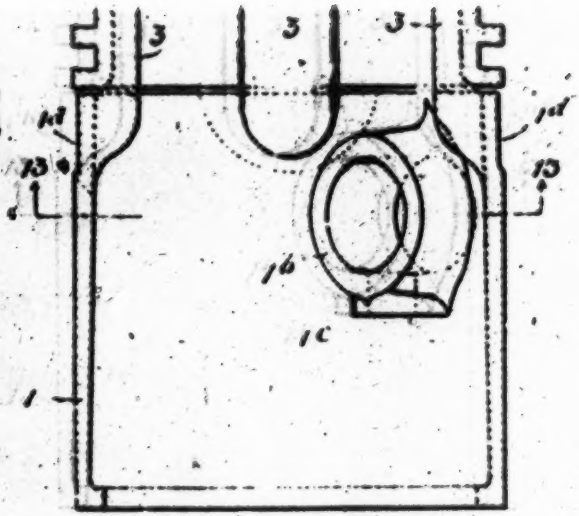
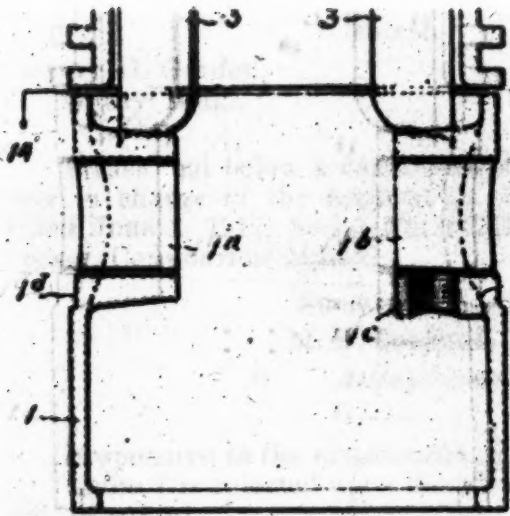


Fig. 12

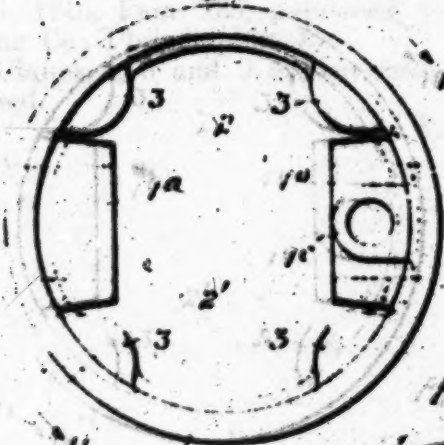


Fig. 13

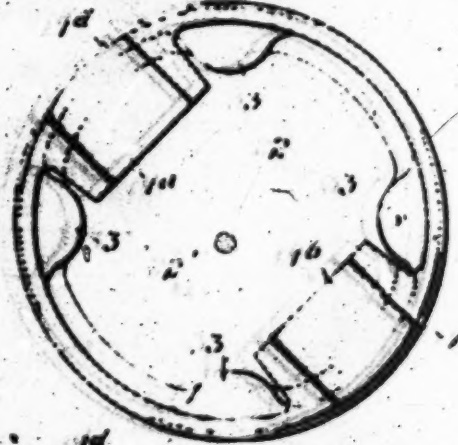
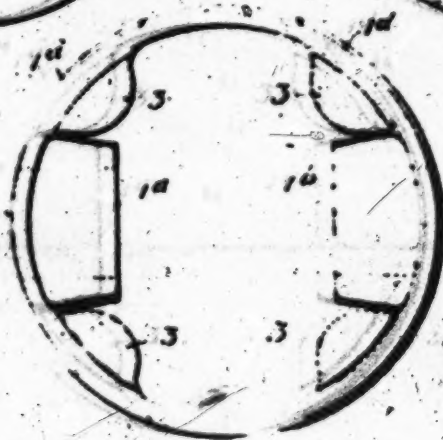
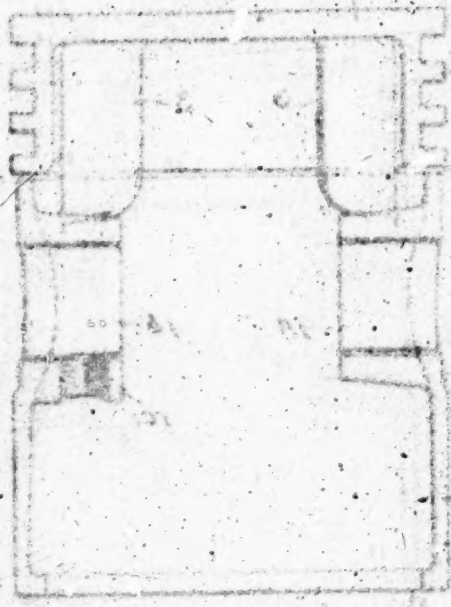


Fig. 14

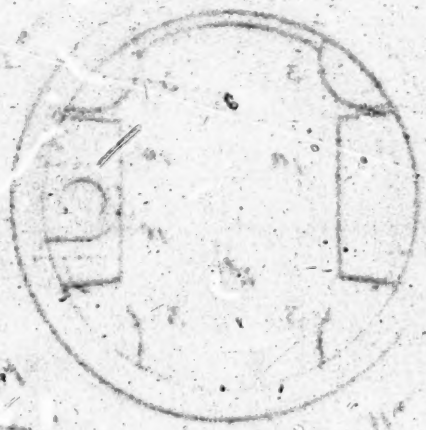
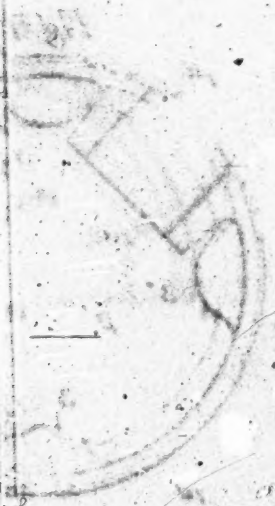


Inventor
 HAYES H. FORD
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DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

WASHINGTON
MAILED

Mar. 3, 1921

" " "

Hayner H. Gordon,
Ouray Bldg.,
City.

Please find below a communication from the Examiner in charge of the application of Louis P. Mooers, Filed June 2, 1917, Serial No. 172,380, PISTON FOR INTERNAL COMBUSTION MOTOR.

~~THOMAS E. ROBERTSON,~~

~~M. H. COULSTON,~~

~~Acting Commissioner of Patents.~~

Responsive to the amendment of Jan. 4, 1921.

Claim 1 is rejected upon the French patent to Chenard, of record.

Claim 2 is allowed.

Claims 3, 5, 6 and 7 are rejected as unpatentable over allowed claim 2 in view of either

Mort, 1,257,098, Feb. 19, 1918 (74-108) or the structure appearing in the Automobile Trade Journal, for April, 1916, Page 133, published by the Chilton Publishing Co., Philadelphia, Pa.

Claims 4, 8 and 9 appear allowable as at present advised.

P. P. PIERCE,

Examiner.

V.L.C.

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Application Div.
May 25 1921
U. S. Patent Office

Division 12, Paper No. 10

May 25 1921

IN THE UNITED STATES PATENT OFFICE

Application of
Louis P. Mooers,
Piston for Internal Combustion Motor
and Process of Making Same,

ent. Cls.

Filed June 2, 1917,
Serial No. 172,380.

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

Responding to the Office letter of March 3, 1921, applicant amends as follows:

Page 1 of the specification, strike out lines 1, 2 and 3 and insert in lieu thereof the following:

—The invention relates to improvements in pistons which are adapted especially for use in internal combustion motors.—

Page 6, line 2, change "by" to —of—.

Page 9, lines 6 and 7, strike out "In my improved process of making a piston for an internal combustion motor the" and insert the following:

—In making my improved piston, I prefer to employ the following process. The—

Claim 1, line 8, change "region" to —regions—.

Same claim, lines 9 and 10, strike out "the interior surface of the head and guide sections being freely accessible from the open end of the piston" and insert in lieu thereof —*there being no cored-out space between any of said connectors and the adjacent side walls of the head and guide sections—*.

Claim 2, line 8, change "region" to —regions—.

Claim 3, line 7, after "means" insert a comma.

Claim 5, line 7, change "walls" to —wall—.

Claim 6, line 9, after the comma insert —*there being no cored-out space between any of said con-*

—1—

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nectors and the adjacent side walls of the head and guide sections and—.

Claim 7, line 11, strike out "in" and insert —*over continuous areas embracing—*.

Claim 8, line 7, after "with" insert —*the axes of*—.

Claim 9, line 9, before "wrist" insert —*axes of the*—.

The foregoing amendments are made pursuant to the oral interview with the Primary Examiner on May 10, 1921.

It is believed that claim 1 is now quite clearly and patentably distinguished from the French patent to Chenard.

Obviously, the piston shown in said French patent could not be produced in a permanent mold, while applicant's piston, as defined in claim 1, is very readily cast in a permanent mold.

Claims 3, 5, 6 and 7 are understood to have been rejected in the last Office action on the theory that they were distinguished from allowed claim 2 only with respect to the relief around the outer ends of the wrist pin bosses, the patent to Mort 1,257,098 and the cut in the Automobile Trade Journal being cited to show this relief feature per se. But, as was pointed out to the Examiner in the oral interview, this holding is not in accordance with the facts. Taking the claims individually, claim 3 differs very substantially in scope from claim 2. The latter claim calls for a continuous air gap and connectors springing from the side walls of the head and guide sections, while in claim 3, the air gap as defined may not be continuous circumferentially, and the connectors may not spring from the side walls. In other words, the relief of the guide section adjacent the boss is not the only and indeed not the main difference between the second and third claims.

—2—

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Claim 5, similarly, differs from claim 2 in not being limited to connectors that "spring from the inner surface of the peripheral wall of the head section."

In claim 6, the connectors are not defined as in the regions of the bosses, as in claim 2. In addition, this claim is further distinguished by the above amendment.

Claim 7 is very materially distinguished from claim 2 in that the connectors are not defined as springing from the inner side walls of the sections, and also in specifying that the guide section is relieved over continuous areas embracing the regions of the boss and connecting means.

For the reasons above stated, it is believed that each of claims 3, 5, 6 and 7 are properly allowable, as well as

claim 2, and allowance of the application as now presented is respectfully solicited.

Respectfully yours,

LOUIS P. MOOERS,

By HAYNER H. GORDON,
Attorney.

Cleveland, Ohio,
May 20, 1921.

47B

2-181

Serial No. 172,380
Patent Office
Jun 3-1921
Mailed

Address only
The Commissioner of Patents,
Washington, D. C.

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE
WASHINGTON

June 3, 1921

Louis P. Mooers, Assr.

Sir: YOUR APPLICATION for a patent for an IMPROVEMENT IN PISTONS FOR INTERNAL COMBUSTION MOTOR filed June 2, 1917, has been examined and ALLOWED.

The final fee, TWENTY DOLLARS, must be paid not later than SIX MONTHS from the date of this present notice of allowance. If the final fee be not paid within that period, the patent on this application will be withheld, unless renewed with an additional fee of \$15, under the provisions of Section 4897, Revised Statutes.

The office delivers patents upon the day of their date, and on which their term begins to run. The printing, photolithographing, and engrossing of the several patent parts, preparatory to final signing and sealing, will require about four weeks, and such work will not be undertaken until after payment of the necessary fee.

When you send the final fee you will also send, DISTINCTLY AND PLAINLY WRITTEN, the name of the INVENTOR, TITLE OF INVENTION, AND SERIAL NUMBER AS ABOVE GIVEN, DATE OF ALLOWANCE (which is the date of this circular), DATE OF FILING, and, if assigned, the NAMES OF THE ASSIGNEES.

If you desire to have the patent issue to ~~Assignees~~, an assignment containing a ~~Request~~ to that effect, together with the ~~Fee~~ for recording the same, must be filed in this office on or before the date of payment of final fee.


After issue of the patent uncertified copies of the drawings and specifications may be purchased at the price of TEN CENTS EACH. The money should accompany the order. Postage stamps will not be received.


Final fees will Not be received from other than the applicant, his assignee or attorney, or a party in interest as shown by the records of the Patent Office.

Respectfully,

THOMAS E. ROBERTSON,
Commissioner of Patents.

HAYNER H. GORDON,
Ouray Bldg.,
City.

 IN REMITTING THE FINAL FEE GIVE THE SERIAL NUMBER AT THE HEAD OF THIS NOTICE.

 UNCERTIFIED CHECKS WILL NOT BE ACCEPTED.

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DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

WASHINGTON

Dec. 1, 1921

PETITION:

Application of L. P. Mooers

Serial No. 172,380

Invention:

This petition is referred to the Examiner in charge of Division 12 for recommendation.

In case he recommends adversely he will state his reasons therefor and furnish a copy thereof to petitioner in accordance with Comm. order No. 2898.

~~Thomas E. Ewing,~~

Thomas E. Robertson,

Commissioner of Patents.

P. P. PIERCE.

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Application Div.
Dec 1 1921
U. S. Patent Office

Division 12, Paper No. 11
Dec 2 1921
U. S. Patent Office.

IN THE UNITED STATES PATENT OFFICE

Application of
Louis P. Mooers,
Piston for Internal Combustion Motor
and Process of Making Same,
Filed June 2, 1917
Serial No. 172,386

Amended under Rule 78.

Hon. Commissioner of Patents,
Washington, D. C.

E

Sir:

In reviewing this application preparatory to the payment of the final fee, a typographical error has been noted in the specification, the use of different terms to refer to the same element has been found to exist in several of the claims and it has been deemed advisable that the patent should issue with several claims for narrower subject matter than called for by certain of the present allowed claims in order fully to protect the inventor.

Furthermore in view of the decision of the Circuit Court of Appeals, Second Circuit, in the case of Geo. Cutter Co. vs. Metropolitan Electric Manufacturing Company reported in volume 275, No. 2 of the Federal Reporter, page 158, published Nov. 17, 1921, it would seem to be incumbent upon every patent solicitor in order to fully protect his client wherever any amendments have been made to the original claims in the course of prosecution of the application and prior to the payment of the final fee, to file a supplemental oath with respect to the claims as finally allowed, as a matter of sheer precaution. Applicant's attorney believes the original oath herein to cover the claims finally allowed but there is no reason he knows of why he should take any chances in this respect and accordingly files herewith a supplemental oath covering the subject matter of the claims as they will issue.

Accordingly please amend as follows:

Page 5, line 10, after the word "skirt" insert the words —*other than*—

This corrects the typographical error above referred to. It is obvious that without these words the sentence does not make sense.

Claim 7, cancel the last line and insert the words —*relieved over continuous areas each embracing the region of one of said bosses and the adjacent connecting means*—

The claim without this amendment does not appear to be grammatical.

Claim 8, cancel the word "skirt" in each instance where it appears in lines 2 and 6 and insert the word —*guide*— in each instance in lieu thereof;

Line 3, cancel the word "skirt" and insert the words —*guide section*—

Line 4, cancel from the word "and" through the word "thereof"; line 6, cancel the word "spaced" and insert the word —*separated*—

In this claim 8 in several places an element is referred to as a skirt and in the last line as a guide section. Certainly the same terms should be used to mean the same thing throughout the claim. Again it seems to be better to use the words "separated by an air gap" than "spaced by an air gap." The same corrections are made with respect to claim 9.

Claim 9, cancel the word "skirt" where it appears in lines 2, 6 and 7 and insert the word —*guide*— in each instance in lieu thereof;

Line 3, cancel the word "skirt" and insert the words —*guide section*—

Line 4, cancel from the word "a n d" through the word "thereof";

Line 6, cancel the word "spaced" and insert the word —*separated*—;

—2—

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Line 7, cancel from the word "columns" through the word "bosses," line 9 and insert —*connectors between the peripheral wall of said head and the guide section formed integral therewith and radially inset with respect to said peripheral wall*—

It is thought that the definition of the disposition of the columns in claim 9 might be misinterpreted as originally expressed but the proposed amendment should clearly avoid any misunderstanding.

Insert the following claims:

—10. An integrally cast piston comprising a head section having end and peripheral walls, a guide section separated at its upper edge from the lower edge of the peripheral wall of said head section by an air gap and provided with diametrically opposed wrist pin bosses and section connectors between the head section and the guide section in the regions of said wrist pin bosses, said connectors being disposed radially inside the air gap and there being no cored-out space between any of said connectors and the adjacent side walls of the head and guide sections.

11. An integrally cast piston comprising a head section having an end wall and a peripheral wall formed with a plurality of ring grooves, a guide section provided with diametrically opposite wrist pin bosses, and means connecting the head and guide sections in the regions of said bosses, the upper edge of the guide section and the lower edge of the head being separated in the regions between said connecting means by air gaps disposed below the lower-most of said ring grooves and the guide section being exteriorly relieved in the regions of the bosses and connecting means.

12. An integrally cast piston comprising a head section having end and peripheral walls, a guide section

—3—

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non-compressible circumferentially and provided with diametrically opposite wrist pin bosses, and means connecting the head and guide sections in the regions of said bosses, the upper edge of the guide section and the lower edge of the head being separated by an air gap in the regions between said connecting means and the guide section being exteriorly relieved in the regions of the bosses and connecting means.—

The three claims herewith submitted are more specific with respect to the subject matter involved than are claims 1, 3 and 4 respectively and they patentably differentiate therefrom. As above suggested, they are believed to be necessary fully to protect applicant's invention.

The review of this application which has been made in conference with the applicant, also has disclosed an inaccuracy in the oaths submitted with the amendments herein dated September 26, 1919 and January 4, 1921 respectively, in that the word "invention" where used in one place in each of said oaths should have been

"design shown by Exhibit A," reference to which is made in the supplemental oath filed herewith.

Respectfully submitted,

LOUIS P. MOOERS,

By HAYNER H. GORDON,

Atty.

Cleveland, Ohio.

Nov. 30, 1921.

53B

Application Div.

Dec 1 1921

U. S. Patent Office

Division 12, Paper No.

Dec 2 1921

U. S. Patent Office:

IN THE UNITED STATES PATENT OFFICE

Application of

Louis P. Mooers,

Piston for Internal Combustion Motor

and Process of Making Same,

Filed June 2, 1917,

Serial No. 172,380

Hon. Commissioner of Patents,

Washington, D. C.

SIR:

It is respectfully requested that the accompanying amendment be entered in accordance with the provisions of Rule 78, without withdrawing the application from issue.

Respectfully submitted,

LOUIS P. MOOERS,

By HAYNER H. GORDON,

Attorney.

Washington, D. C.,

December 1, 1921.

ENTRY RECOMMENDED.

UNDER RULE 78.

P. P. PIERCE,

Examiner.

Approved

Dec 2-1921

THOMAS E. ROBERTSON,

Commissioner of Patents.

54B

Application Div.
Dec 1 1921
U. S. Patent Office

IN THE UNITED STATES PATENT OFFICE

Application of
Louis P. Mooers,
Piston for Internal Combustion Motor
and Process of Making Same,
Filed June 2, 1917,
Serial No. 172,380

OATH

DISTRICT OF COLUMBIA, SS:

Louis P. Mooers, being duly sworn, deposes and says that he is the Louis P. Mooers who filed above entitled application for Letters Patent; that the subject matter of each amendment to the said application which has been made, including the amendment dated November 30, 1921, was part of his invention, was invented before he filed his original application, above identified, for such invention; that his invention as set forth in the specification and described and claimed in the twelve claims of the application as amended by the said amendment dated November 30, 1921, was not known or used before his invention or discovery thereof, or patented or described in any printed publication in any country before his invention or discovery thereof or more than two years prior to the original filing of his application above identified, or in public use or on sale in the United States for more than two years prior to the original filing of said application; that said invention has not been patented in any country foreign to the United States on an application filed by him or his legal representatives or assigns more than twelve months prior to this application; that no application for patent on said invention has been filed by him or his representatives or assigns

55B

in any country foreign to the United States; and that said invention has not been abandoned.

Affiant further states that preparatory to paying the final fee in his application above identified, affiant has carefully reviewed the record thereof and has noted in connection with his affidavits filed with the amendments of September 26, 1919 and January 3, 1921, respectively,

an error, namely, that the word "invention" where it appears in line 6, page 2 of the first affidavit and in line 5, page 2, of the second affidavit should have been the words —*design shown by Exhibit A*—; that as a matter of fact affiant made the invention in question long prior to the said request of the said E. E. Allyne; that affiant's attorney who prepared the oaths in question was not aware of this fact and prepared said oaths in ignorance thereof, and that affiant did not note the error until reviewing the records of the application as above stated, and that he now makes oath with respect to said error in order to correct his application record in this respect.

LOUIS P. MOOERS.

Sworn to and subscribed before me this 1st day of December, 1921.

CORA VAN SANT,

(Seal)

Notary Public.

—2—

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2-261-a

Address only
Commissioner of Patents
Washington, D. C.

All communications respecting this application should give the serial number, date of filing, title of invention, and name of the applicant.

P-D

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE
WASHINGTON

Dec. 2, 1921

Hayner H. Gordon,
Ouray Bldg.,
City.

In the application of Louis P. Mooers, Filed June 2, 1917, Serial No. 172,380, PISTON FOR INTERNAL COMBUSTION MOTOR Allowed June 3, 1921. The amendment filed Dec. 1, 1921 has been entered under Rule 78.

THOMAS E. ROBERTSON,
Commissioner of Patents.

P. P. PIERCE.

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2-327.

\$20—Rec'd
Dec 2 1921 U
C. C. U. S. Pat. Office

**MEMORANDUM OF FEE PAID AT UNITED STATES
PATENT OFFICE.**

(Be careful to give correct Serial No.)

Serial No. 172380, 19.

Inventor:

Louis P. Mooers

Patent to be Issued to

The Cleveland Trust Co.

Name of Invention, as Allowed:

Piston for Internal Combustion Motor

Date of Payment:

Dec. 2-1921

Fee:

\$20.

Date of Filing:

June 2-1917

Date of Circular of Allowance:

June 3-1921

The Commissioner of Patents will please apply the accompanying fee as indicated above.

HAYNER H. GORDON,

Attorney.

Send Patent to

Hayner H. Gordon,

Ouray Bldg.,

Washington, D. C.

58B

PRINTERS' NOTE:

A copy of U. S. Patent No. 1,402,309, Jan. 3, 1922, to L. P. Mooers, was bound into the original of this Exhibit at this point, but inasmuch as it appears, *supra*, page 1309, as Plaintiffs' Exhibit No. 6, it has been omitted to comply with the Equity Rule against duplication.

74. Machine Elements.

108

1917

CONTENTS:

- 1. Application 1 papers-**
- 2. Letter June 2, 1917**
- 3. Rej. Jul 20 1917**
- 4. Amendment A. July 10, 1918**
- 5. Rej Sep 28 1918**
- 6. Amendment B and Affidavit Sep. 26/19**
- 7. Rej Jan 6-1920**
- 8. Amendment C and Affidavit Jan. 4, 1921**
- 8½. Letter to Office. March 1, 1921**
- 9. Rej. Mar 3-1921**
- 10. Amendment D May 25, 1921**
- 11. Amendment (R. 78) E and Sup. Oath, Dec 1/21**
- 12. Notice of Entry of Amdt. (R. 78) Dec 2, 1921**

67B

DEFENDANTS' EXHIBIT 4-L.
File Wrapper and Contents of Jardine Patent in Suit.
(Filed January 27, 1934.)

390

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE

To all persons to whom these presents shall come, Greeting:

THIS IS TO CERTIFY that the annexed is a true copy from the records of this office of the File Wrapper and Contents, in the matter of the Letters Patent of Frank Jardine, Assignor, by Mesne Assignments, to The Cleveland Trust Company, as Trustee, Number 1,763,523, Granted June 10, 1930, for Improvement in Pistons.

IN TESTIMONY WHEREOF I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the City of Washington, this fourteenth day of January, in the year of our Lord one thousand nine hundred and thirty-three and of the Independence of the United States of America the one hundred and fifty-seventh.

THOMAS E. ROBERTSON,
Commissioner of Patents.

(Seal)

ATTEST:

D. E. WILSON,
Chief of Division.

1920
RENEWAL

Number (Series of 1915),

1763523

364907 450898

(Ex'r's Book) 162-44-D

Div. 12

Patent No. 1763523

Jun 10 1930

Name Frank Jardine, Assor. by mesne assigts. to
Aluminum Manufactures, Company of America, Incorporated,
of Cleveland, Ohio, Pittsburgh, Penna., a

corp. of Delaware, Pennsylvania. The Cleveland Trust Company; of Cleveland, Ohio, a corp. of Ohio, as Trustee of Cleveland, County of State of, Ohio.
Invention Pistons.

PARTS OF APPLICATION FILED.

ORIGINAL		RENEWED
Petition	Mar. 11, 1920	Mar. 9, 1921
Affidavit	" " 1920	, 192
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First Fee Cash \$15.	Mar. 11, 1920	\$15, Mar. 8, 1921
" " Cert.	, 192	, 192
Appl. filed complete	Mar. 11, 1920	Mar. 9, 1921

Examined and Passed for Issue May 9, 1930
Sept. 8, 1920

P. P. Pierce Exr. Div. 12 P. P. Pierce Exr. Div. 12
Notice of Allowance Sept 8-1920 May 9, 1930
By Commissioner. By Commissioner.

Final Fee Cash , 192 \$20 May 15, 1923
" " Cert. , 192 , 192

Patented Jun 10 1930

Attorney Ray Stewart Gehr
Euclid Bldg., Cleveland Ohio
Associate Attorney L. D. Watts, 207 Banger Bldg.,
451 Lennox Building, East 9th & Euclid Ave.,
(No. of Claims Allowed 7 12) Print Claims 5 1 in O. G.
(Cl 74-108)

Title as Allowed Pistons
Substitute Attys. Richey, Slough & Watts, 1213 Ulmer
Bldg.,

1983 Union Trust Bldg Cleveland, Ohio

Division of App., No., filed, 191..

Jardine Patent No. 1,753,523

3029

(\$15 Rec'd Mar 11 1920 C. C. U. S. Pat. Office)

Ch

Mar 15 1920

U. S. Patent Office
Cleveland, Ohio

364997

RAY STEWART GEHR

COUNSELLOR AT LAW

Washington
Ouray Building
Cleveland
Garfield Building

Patents and
Patent Causes

March 9, 1920.

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

I enclose herewith for filing petition, specification, oath and drawings, also check for \$15.00 constituting the application of Frank Jardine for patent on Pistons.

Respectfully yours,

RAY S. GEHR.

RSG FR
Enclosures

364997—1

I 884

364997

(Mail Room Mar 11 1920 U. S. Patent Office)

Insert
523

Division 12, Paper No. 1

Mar 15 1920

U. S. Patent Office

PETITION.

TO THE COMMISSIONER OF PATENTS:

Your petitioner, FRANK JARDINE, a citizen of the United States and a resident of Cleveland, in the County of Cuyahoga and State of Ohio, whose post-office address is care of The Aluminum Castings Company, Cleveland, Ohio, prays that Letters Patent may be granted to him for the improvement in Pistons, set forth in the annexed specification; and he hereby appoints Ray Stewart Gehr, of 1900 Euclid Building, Cleveland, Ohio, his attorney with full power of substitution and revocation, to prosecute this application, to make alterations and amend-

ments therein, to receive the patent, and to transact all business in the Patent Office connected therewith.

Signed at Cleveland, County of Cuyahoga, State of Ohio, this 9th day of March 1920.

FRANK JARDINE.

SPECIFICATION.

TO ALL WHOM IT MAY CONCERN:

Be it known, that I, Frank Jardine, a citizen of the United States, residing at Cleveland, in the County of Cuyahoga, and State of Ohio, have invented certain new and useful improvements in pistons, of which the following is a specification, reference being had therein to the accompanying drawings.

364997—2

(Hr.)

I 885

My invention relates to pistons for internal combustion engines and especially to pistons formed of light weight metals or alloys.

The invention has for its chief object the construction of a light alloy piston which, with relatively small initial clearance, will operate satisfactorily at all temperatures in an engine cylinder.

Another object of the invention is to produce a piston of the character noted that will lend itself to economic methods of manufacture.

Because of the high co-efficient of expansion of suitable light alloys such as aluminum alloys, as compared with iron, it is often difficult to fit an internal combustion engine satisfactorily operable with iron pistons, with light alloy pistons so that such pistons will not be noisy and will not pump oil when cold, or will not stick or score the cylinder wall when heated. I have found that these difficulties can be overcome by constructing a piston with its skirt or guide portion supported and slotted or divided in a manner to permit deformation and deflection of parts thereof without interfering with the performance of the essential functions of the respective parts.

To facilitate an understanding of the invention two forms or embodiments thereof are described hereinafter and are illustrated in the accompanying drawings in which

Fig. 1 is a view partly in side elevation and per B partly in section of a "clipper" type piston constructed in accordance with my invention.

Fig. 2 is a side elevation of the same piston viewed at right angles to Fig. 1.

Fig. 3 is a section on the line 3—3 of Fig. 1.

Fig. 4 is a section on the line 4—4 of Fig. 1.

1

364997—3

I 886

Fig. 5 is a section on the line 5—5 of Fig. 1.

Fig. 6 is a view partly in side elevation and per B partly in section of a "clipper" type piston of modified form.

Fig. 7 is a side elevation of the same viewed at right angles to Fig. 6 and with parts broken away and shown in section.

Fig. 8 is a section on line 8—8 of Fig. 6.

Fig. 9 is a section on line 9—9 of Fig. 6.

Referring first to Figs. 1 to 5, the piston per B shown is of the so-called clipper type and comprises a head portion 1 and a guide or skirt portion designated in its entirety by 2. The head portion consists of a head disc 3 and a peripheral flange 4 in which are grooves 4a for the ordinary piston rings 5. On the lower face of the head disc 3 are formed two depending webs 6 integral with the disc. These webs carry bosses 7 which are adapted to receive the ordinary wrist pin. Ribs 8 may be provided along the webs 6 between the head disc and the bosses for strengthening the webs 6 and supporting the inner ends of the bosses. Additional ribs 9 may be formed on the outer sides of webs 6 as shown to strengthen them and to support the outer ends of the bosses.

The guide portion 2 comprises two pairs of per B clipper guide segments 10 and 10a curved to conform to the engine cylinder, one pair being located on either side of the bosses. The segments are integral with the webs 6 and are supported and connected to the head portion 1 by means of these webs. The segments at their upper ends are separated from the flange 4 of head portion 1 by slots 11 and are further isolated from the head by slots 11a formed in webs 6. The segments of each pair are separated from one another by a longitudinally extending slot 12, said slot preferably being inclined or spirally arranged as shown. In the construc-

per B tion shown the guide slipper portion formed by

I 887

segments 10a is designed to take the diagonal thrust of the piston rod during the compression stroke of the engine and as said thrust is less than the corre-

44 sponding thrust during the explosion stroke, said

per B slipper portion 10a is made narrower circumfer-

" B entially than the other slipper portion 10 so as to save weight.

The flange 4 of the head portion 1 has a smaller outer diameter than the guide portion 2, the diameter of the latter being only slightly smaller than the internal diameter of the cylinder in which it is to function.

In the operation of an internal combustion engine the piston usually is heated to a higher temperature than the cylinder wall and expands radially to a greater amount than the cylinder. This expansion reduces the clearance between the piston skirt or guide part and the cylinder wall and in the case of pistons not constructed according to my invention, if the initial clearance provided is small, scoring of the cylinder walls or piston, or seizure of the piston in the cylinder may result. With my invention, however, the guide segments 10, 10a, are capable of deformation or displacement as the piston guide parts expand, the segments being forced toward one another so as to tend to close up the slots 12. The

per B webs 6 and slipper guide segments preferably are so designed that this displacement of the segments 10, 10a, is permitted by virtue of a bending of the

per B webs 6 at points remote from the slipper guide " B segments. To this end, as shown in Fig. 5, 4 the

per A thickness of the slipper guide segments is increased toward the webs 6 and the webs 6 are de-

" B creased in thickness from the slippers guide portions inward toward the bosses to points in line with the inner ends of the slots 11a. This gives in

per A effect a cantilever structure weakest at its support, namely, along the dotted lines 13 in Figs. 3, 1 and 4

" B Thus the reaction force of the cylinder wall on the outer faces of the slipper guide segments as the

piston expands tends to cause bending of the webs 6 along said lines 13. Due to the bending of the web sections 6 and the forcing together of each pair of seg-

ments, the guide part of the piston may undergo a considerable thermal expansion without a corresponding increase in the outer diameter thereof and thus a small initial clearance can be used without danger of scoring or seizure of the piston.

By variation of the thickness and design of the webs 6 and the location of the slots 11a therein, the force necessary to cause the guide segments 10 and 10a to approach one another along the slot 12, or in effect to maintain the outer diameter of the piston substantially constant, can be easily regulated. The webs 6 will tend to bend along a line extending vertically downward from the ends of slots 11a and if said slots are terminated closer to the guide segments 10, 10a the region of bending will be moved outward correspondingly. Likewise a thickening of the webs 6 near the bosses will tend to move the point of bending or flexing closer to the guide segments 10, 10a. An increase of the thickness of the webs 6 obviously will increase the force necessary to cause the guide segments 10, 10a to approach one another along the slot 12.

In Figs. 6 to 9 a modified form of piston is shown. The head portion 21 is formed with a head disc 22 and a depending peripheral flange 23 in which may be formed grooves 24 for the ordinary piston rings. Depending webs 25 are formed at diametrically opposite parts of the lower edge of the peripheral flange 23. These webs carry bosses 26 for the customary wrist pin, the inner ends of the bosses being supported by ribs 27 which join the webs 25 and extend from the inner ends of the bosses 26 to the lower side of the head disc 22, while the outer ends of said bosses are supported by ribs 27a.

On either side of the bosses 26 are formed pairs of guide segments 28 and 28a similar to those shown in

-4-

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I 889

Figs. 1 to 5. These segments are united with webs 25 as shown and are separated from the flange 23 by slots 29 and further isolated from the head by slots 29a in the walls 25. The guide segments of each pair are separated from one another by longitudinally extending slots 30.

It will be seen that this last form of construction is based upon the same principles as the first form and further detailed description is therefore unnecessary. The main difference between the last form of construction and that first described resides in the webs 25 which

per B 41 support the wrist pin bosses and the guide slippers, portions said walls being joined to the head structure at the lower edge of the ring flange 23 rather than springing from the head disc as in the first form of construction.

From the foregoing description the operation of pistons embodying my improvements will readily be understood. It will be seen that an aluminum alloy piston embodying my invention can be fitted to the engine cylinder with a very small clearance and that compensation for the relatively large thermal expansion of the guide section of the piston is provided by the displacement of the guide segments which results from the reaction force of the cylinder wall on the outer faces of the guides. As above indicated the reaction force necessary to displace the guide parts and effect such compensation can readily be controlled by properly forming and proportioning the guide parts. In this connection it will be obvious to the designer that account must be taken of such factors as compression pressures, piston diameter and piston stroke as determining the lateral thrust to which the guide parts will be subjected. It is obvious that the compensating displacement of the guide parts should require a thrust great enough to insure adequate mechanical strength of the piston and small enough to obviate scoring of the piston and cylinder or seizure of the

-5-

364997-7

I 890

piston.

While I have shown my invention applied to the slipper type of piston as distinguished from the skirt type it is to be understood that the invention is essentially applicable to other forms of construction, the scope of the invention being indicated by the appended claims.

364997-8

I 891

What I claim is—(B' Cls. 1-2)

1. In a piston for an internal combustion engine, the combination of a piston head comprising a disc having an integral peripheral flange formed with ring grooves, piston rings in said grooves, two pairs of curved members oppositely disposed with relation to the axis of the piston and together adapted to function as a cylinder-engaging guide, each pair of curved members being separated from the head flange and from each

Per C other by continuous air gaps, two webs which are integral with and spring from the head disc each being connected to and integral with one of the guide members of each of said pairs thereof and constituting the only connection between the face of the piston head disc and the guide members, and wrist pin bosses formed in these webs in which they are so positioned as to lie between the pairs of guide members as set forth.

2. In a piston for an internal combustion engine, the combination of a piston head comprising a disc having an integral peripheral flange formed with ring grooves, two pairs of curved members oppositely disposed with relation to the axis of the piston and together adapted to function as a cylinder-engaging guide, each pair of curved members being separated from the head flange and from each other by continuous air gaps, two webs which are integral with the piston head, each being connected to and integral with one of the guide members of each of said pairs thereof and constituting the only connection between the piston head and the guide members, and wrist pin bosses formed in these webs in which they are so positioned as to lie between the pairs of guide members as set forth.

3. In a piston for an internal combustion engine, the combination of a piston head comprising a disc having an integral peripheral flange formed with ring grooves, two pairs of curved guide members oppositely disposed with relation to the axis of the piston and to-

364997—9

I 892

gether adapted to function as a cylinder-engaging guide, the curved members of each pair thereof being separated from the head flange and from each other by continuous air gaps, two webs integral with the piston head and connected to the adjacent guide members, and wrist pin bosses formed in these webs in which they are so positioned as to lie between the pairs of guide members as set forth.

4. 1c In a piston for an internal combustion engine, the combination of a piston head having a depending ring flange, two pairs of curved guide members oppositely disposed with relation to the axis of the piston, the curved members of each pair thereof being separated
Per A from the head ring flange and from each other

by continuous air gaps, and webs carrying wrist pin bosses, the said curved members, piston head and webs being united in an integral unitary structure.

5. In a piston for an internal combustion engine, the combination of a piston head comprising a head disc and a depending peripheral flange formed with ring grooves, and a guide formed integrally with the head and comprising two pairs of cylinder-engaging curved members oppositely disposed with relation to the axis of the piston and two webs each connected to the head and to one of the guide members of each of said pairs thereof, each pair of curved members being separated from the head flange and from each other by continuous air gaps, and wrist pin bosses formed in the webs in which they are so positioned as to lie between the pairs of guide members as set forth, the said guide structure being adapted to permit the curved members of each pair to approach each other under the reaction forces of the cylinder when the piston is heated.

6. 2c In a piston for an internal combustion engine, the combination of a piston head comprising a head disc and a depending peripheral flange formed with ring grooves, curved guide mem-

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I 893

bers separated from the piston head by air gaps, webs in which wrist pin bosses are formed, the curved members, piston head and webs being integrally united and formed in such a manner that the said members on either side of the said bosses may approach each other as the piston expands to maintain substantially constant the diameter of the said curved members when taken together.

7. In a piston for an internal combustion engine, the combination with a piston head comprising a disc and a depending peripheral flange formed with ring grooves, of a guide structure operably connected to the head and comprising two pairs of cylinder-engaging curved parts and two webs each connected to one curved member of each pair and formed with a wrist pin aperture, each pair of curved guide parts being separated from the head flange and from each other by continuous air gaps and the guide structure being

adapted to permit the curved guide members of each pair to approach each other under the reaction forces of the cylinder when the piston is heated.

Insert A¹

364997-11

I 894

IN TESTIMONY WHEREOF, I hereunto affix my signature.

FRANK JARDINE.

OATH

COUNTY OF CUYAHOGA,
STATE OF OHIO, ss.

FRANK JARDINE, the above named petitioner, being duly sworn, deposes and says he is a citizen of the United States and a resident of Cleveland, in the County of Cuyahoga and State of Ohio; that he verily believes himself to be the original, first and sole inventor of the improvement in Pistons, described and claimed in the annexed specification; that he does not know and does not believe that the same was ever known or used before his invention or discovery thereof; or patented or described in any printed publication in any country before his invention or discovery thereof, or more than two years prior to this application, or in public use or on sale in the United States for more than two years prior to this application; that said invention has not been patented in any country foreign to the United States on an application filed by him or his legal representatives or assigns more than twelve months prior to this application; and that no application for patent on said improvement has been filed by him or his legal representatives or assigns in any country foreign to the United States.

FRANK JARDINE.

Sworn to and subscribed before me this 9th day of March, 1920.

GEO. B. PITTS,

(Seal)

Notary Public.

364997-12

(Mail Room Jun 19 1920 U. S. Patent Office)

(Docket Clerk Jun 19 1920)

#2

Doc

Frank Jardine,
Pistons,
Ser. No. 364,997,
Filed March 11, 1920.

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

All Powers of Attorney previously granted in this application are hereby revoked.

I hereby appoint B. D. Watts, of 1900 Euclid Avenue, 307 Bangor Bldg. Cleveland, Ohio, my attorney with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to receive the patent, and to transact all business in the Patent Office connected therewith.

Signed at Cleveland, in the County of Cuyahoga and State of Ohio, this 14th day of June, 1920.

FRANK JARDINE.

(U. S. I. R. Documentary Stamp, 25 Cents)

✓ (Accepted Jun 22 1920 R. F. Whitehead
First Assistant Commissioner.)

364997-13

2-069

146
EEG

#3

Address only
The Commissioner of Patents
Washington, D. C.

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Washington, D. C., June 23, 1920.

You are hereby informed that YOUR POWER OF
ATTORNEY HAS BEEN ~~REVOKED~~ ACCEPTED in the matter of the

application of Frank Jardine for Letters Patent for an
IMPROVEMENT IN Pistons, No. 364,997, Filed March 11,
1920.

Very respectfully,

JAMES T. NEWTON,
Commissioner.

B. D. WATTS,
307 Bangor Bldg.,
Cleveland, Ohio.

364997-14

2-069

145
EEG

Address only
The Commissioner of Patents
Washington, D. C.

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Washington, D. C., June 23, 1920.

You are hereby informed that YOUR POWER OF
ATTORNEY HAS BEEN ~~REVOKED~~ ~~ACCEPTED~~ in the matter of the
application of Frank Jardine for Letters Patent for an
IMPROVEMENT IN Pistons, No. 364,997, Filed March 11,
1920.

Very respectfully,

JAMES T. NEWTON,
Commissioner.

RAY STEWART-GEHR,
Euclid Bldg.,
Cleveland, Ohio.

364997-15

(Mail Room Jul 12 1920) U. S. Patent Office)

Division 12, Paper No. 4

Jul 13 1920

U. S. Patent Office

BLYTHE D. WATTS

Solicitor of Patents

1900 Euclid Ave.

Cleveland, Ohio

451 Lennox Bldg.,

July 9th, 1920.

In Re Application of
Frank Jardine,
Pistons,
Serial No. 364,997,
Filed March 11, 1920

Hon. Commissioner of Patents,
Washington,
D. C.

Dear Sir:—

In the above identified application, kindly note that
my address has been changed from,
Room 307 Bangor Bldg., 942 Prospect ave.,
Cleveland, Ohio

to

Room 451 Lennox Bldg., East 9th & Euclid Ave.,
Cleveland, Ohio.

Yours very truly,

BDW
kmc

B. D. WATTS,

364997—16

(Patent Office Sep 8-1920 Mailed)

2-181

Div. 12

Ch:I

Serial No. 364,997

Address only

The Commissioner of Patents,
Washington, D. C.

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Washington, Sept. 8, 1920.

Frank Jardine,

Sir: Your Application for a patent for an Improvement in Pistons filed Mar. 1, 1920, has been examined and Allowed.

The final fee, Twenty Dollars, must be paid not later than Six Months from the date of this present notice of allowance. If the final fee be not paid within that period, the patent on this application will be withheld, unless renewed with an additional fee of \$15, under the provisions of Section 4897, Revised Statutes.

The office delivers patents upon the day of their date, and on which their term begins to run. The printing, photolithographing, and engrossing of the several patent parts, preparatory to final signing and sealing, will require about four weeks, and such work will not be undertaken until after payment of the necessary fee.

When you send the final fee you will also send, Distinctly and Plainly Written, the name of the Inventor, Title of Invention, and Serial Number as Above Given, Date of Allowance (which is the date of this circular), Date of Filing, and, if assigned, the Names of the Assignees.

If you desire to have the patent issue to Assignees, an assignment containing a Request to that effect, together with the Fee for recording the same, must be filed in this office on or before the date of payment of final fee.

After issue of the patent uncertified copies of the drawings and specifications may be purchased at the price of Five Ten Cents Each. The money should accompany the order. Postage stamps will not be received.

Final fees will Not be received from other than the applicant, his assignee or attorney, or a party in interest as shown by the records of the Patent Office.


Respectfully,


JAMES T. NEWTON,

R. F. Whitehead.

Commissioner of Patents.

B. D. WATTS,
451 Lennox Bldg., East 9th & Euclid Ave.,
Cleveland, Ohio.

 In Remitting the Final Fee Give the Serial Number at the Head of This Notice.

 Uncertified Checks-Will Not Be Accepted.

364997-17

(\$15 Rec'd Mar 8 1921 C. C. U. S. Pat. Office 26)
(Application Div. Mar 9 1921 U. S. Patent Office)

Renewal

Division 12, Paper No. 5
Mar 16 1921
U. S. Patent Office.

RENEWAL PETITION

To the Commissioner of Patents:

Your petitioner, Frank Jardine, a citizen of the United States, and a resident of Cleveland, in the County of Cuyahoga, and State of Ohio, whose post-office address is Care of the Aluminum Castings Company, Cleveland, Ohio, represents that on the 11th day of March 1920, he filed an application for Letters Patent for an improvement in Pistons, Serial No. 364,997 which application was allowed September 8th 1920, but that he failed to make payment of the final fee within the time allowed by law. He now makes renewed application for Letter Patent for said invention, and prays that the original specification, oath and drawings, may be used as a part of this application.

Signed at Cleveland, in the County of Cuyahoga and State of Ohio, this 7 day of March 1921.

FRANK JARDINE,

By B. D. WATTS,

His Attorney.

Pet. redated Mar. 9, 1921 as case had not forfeited on date petition was rec'd Mar. 8/21.

Appl'n Div. P

364997-18

(Mail Room Mar 8 1921 U. S. Patent Office)

Division 12, Paper No. 6

Mar 16 1921

U. S. Patent Office.

▲

In Re Application of

Frank Jardine,

PISTONS

Serial No. 364,997

Filed March 11th 1920

Allowed September 8th 1920

Renewed

Hon. Commissioner of Patents,

Washington,

D. C.

▲

Sir:

Applicant amends the above identified application as follows:

Page 3, line 25 cancel "5" and insert, —4—.

Page 3, next to last line, change "Fig. 3", to —Figs. 1 and 4—.

Claim 4, line 5 cancel "head" and insert —ring—.

Enter the following claims as claims, 8, 9, 10 and 11.

8. —In a piston for an internal combustion engine, the combination of a substantially cylindrical piston head having grooves therein, piston rings in said grooves, a skirt for said piston head connected to the same, piston pin bosses in said piston, the portions of the skirt adjacent the outer ends of the bosses, being relieved all along the length of

the skirt, said piston being provided with horizontal slots adjacent the junction of the head and the skirt and

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with a vertical, or substantially vertical, slot extending thruout, or substantially thruout, the length of the skirt.

9. —In a piston for an internal combustion engine, the combination of a substantially cylindrical piston head having grooves therein, piston rings in said grooves, a skirt for said piston head connected to the same, piston pin bosses in said piston, the portions of the skirt adjacent the outer ends of the bosses being relieved all along the length of the skirt, said piston being provided with a vertical, or substantially vertical, slot extending, from near the junction of the skirt with the head, thruout, or substantially thruout, the length of the skirt to or near the lower end of the skirt.

10. —In a piston for an internal combustion engine, the combination of a substantially cylindrical piston head having grooves therein, piston rings in said grooves, a skirt for said piston head connected to the same, piston pin bosses in said piston, the portions of the skirt adjacent the outer ends of the bosses being relieved all along the length of the skirt, said piston head being provided with circumferential slots adjacent the junction of the head and the skirt, and with a vertical, or substantially vertical, slot, substantially midway between the ends of the piston pin bosses joining one of the horizontal slots at one end and extending thruout, or substantially thruout, the length of the skirt to or near the lower end of the skirt.

11. —In a piston for an internal combustion engine, the combination of a substantially cylindrical piston head having grooves therein, piston rings in said grooves, a skirt for said piston head connected to the same, piston pin bosses in said piston, portions of the skirt adjacent the outer ends of the bosses being relieved, said piston being provided with cir-

364997—20

cumferential slots adjacent the junction of the head and the skirt, and with a vertical, or substantially vertical, slot substantially midway between the ends of the piston pin bosses, adjoining one of the horizontal slots at one end and extending thruout, or substantially thruout, the length of the skirt to or near the lower end of the skirt.

It is believed that the new claims herewith presented are clearly allowable and early and favorable action is solicited.

Respectfully submitted,

FRANK JARDINE,

By B. D. WATTS,

His Attorney.

—3—

364997—21

SUPPLEMENTAL OATH

STATE OF OHIO,
CUYAHOGA COUNTY, ss.

Frank Jardine, whose application for Letters Patent for an improvement in PISTONS, serial No. 364,997, was filed in the United States Patent Office on or about March 11th 1920, being duly sworn deposes and says that the subject matter of the foregoing amendment attached hereto and containing new claims 8, 9, 10, 11, 12 was part of his invention, was invented before he filed his original application above identified for such invention, was not known or used before his invention, was not patented or described in a printed publication in any country more than two years before his application, was not patented in a foreign country on an application filed by himself or his legal representatives or assigns more than twelve months before his application, was not in public use or on sale in this country for more than two years before the date of his application, and has not been abandoned.

FRANK JARDINE.

Sworn to before me and signed in my presence this
28th day of Feb. 1921.

MERLE B. PRICE,

Notary Public.

364997—22

(Patent Office Apr 9 1921 Mailed)

2-260

Div. 12 Room 322

Paper No. 7

Address only

"The Commissioner of Patents,
Washington, D. C.,"
and not any official by name.

Ch-D

All communications respecting this
application should give the serial number,
date of filing, title of invention, and
name of the applicant.

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Washington Apr. 9, 1921.

B. D. Watts,
451 Lennox Bldg.,
East 9th St. & Euclid Ave.,
Cleveland, Ohio.

Please find below a communication from the Examiner in charge of the application of Frank Jardine, Filed Mar. 9, 1921, Serial No. 450,898 PISTONS.

THOMAS E. ROBERTSON,
Commissioner of Patents.

Responsive to the amendment of Mar. 8, 1921.

Claim 9, line 6 "relieves" should be *relieved*. Line 8 "ectending" should be *extending*.

Claim 11, line 2 "combination" is misspelled. Line 6 "relieves" should be *relieved*.

Claims 8 to 11 inclusive are rejected as defining structure unwarranted by the specification and drawing. The slot 12 is described in the specification and shown on the drawing as being spiral or diagonal. It would therefore be inconsistent to claim a "vertical" slot. Applicant is also unwarranted in claiming horizontal slots extending "*substantially thruout*" the length of the skirt when he only shows a slot extending *thruout*.

The expressions "throughout, or substantially throughout," "vertical or substantially vertical" and

"the length of the skirt to or near the lower end—" are objectionable as being alternative.

The remaining claims stand allowed.

P. P. PIERCE,

Examiner.

V.I.C.

364997-23

I 895

(Mail Room Jan 29 1922 U. S. Patent Office)

Division 12, Paper No. 8

Jan 24 1922

U. S. Patent Office

12

B. Sup. Oath

In Re Application of
Frank Jardine,

PISTONS

Serial No. 364,997 Renewal No. 450,898

Filed March 11th, 1920.

Allowed September 8th, 1920.

Renewed.

Cleveland, Ohio.
January 20, 1922.

Hon. Commissioner of Patents,
Washington,
D. C.

Sir:—

B

Applicant amends the above identified application as follows:—

Page 1, line six from the bottom, cancel "slipper type".

Page 2, line 3, cancel "slipper type".

Page 2, lines 9 and 10, cancel "is of the so-called slipper type and". Page 2, line 11, between "guide" and "portion" insert *or skirt*.

Change "slipper" to *guide* in the following places:—

Page 2, line 22; page 3, line 21; page 3, line 24; page 3, line 25; page 3, last line.

Page 2, last line, change "slipper" to *portion*.

Page 3, line 4, change "slipper" to *portion 10a*.
Page 3, line 5, change "slipper" to *portion 10*. Page 3, line 5, from the bottom, change "slippers" to *guide portions*.

Page 5, line 11, change "slippers" to *portions*.

Cancel claims 8 to 11 inclusive and substitute the following:—

3e. 8. 1. In a piston, for an internal combustion engine, the combination of a head having ring grooves therein, a plurality of webs integral with said head and having diametrically opposite piston pin bosses therein, a skirt integral with said webs relieved adjacent said webs and separated from the head by cir-

364997—24

I 896

cumferential slots and provided with a longitudinal slot connecting the lower end of the piston with one of the circumferential slots. (over)

9. 4c In a piston for an internal combustion engine the combination of a head having ring grooves therein, a plurality of cordal webs integral with said head and having diametrically opposite piston pin bosses therein, a skirt integral with said webs, relieved adjacent said webs and separated from the head by circumferential slots and provided with a longitudinal slot connecting lying on a line extending from the lower end of the piston with to one of the circumferential slots.

10. 5c In a piston for an internal combustion engine, the combination of a head having ring grooves therein, a plurality of webs integral with the head and extending downwardly therefrom, diametrically opposite piston pin bosses in said webs, a skirt for said piston, relieved adjacent said webs to expose said bosses, with circumferential slots between said head and skirt, and having a longitudinal slot lying on a line extending from connecting the lower end of the skirt with one of the slots.

11. In a piston for an internal combustion engine the combination of a head having ring grooves therein, a plurality of webs connected to the piston head and extending downward therefrom, diametrically oppositely disposed wrist pin bosses, one in each of said webs, a skirt for said piston connected to the side edges of the webs and relieved adjacent the webs to expose the webs and the bosses, said piston pro-

vided with circumferential slots between the skirt and head and with a longitudinal slot extending from a circumferential slot to the open end of the skirt.

12. In a piston for an internal combustion engine, the combination of a head, a plurality of webs each connected integrally at one end with the head and projecting downwardly therefrom, and piston pin bosses in each web, a skirt for said piston connected integrally with the

—2—

364997—25

I 897

side edges of the webs and relieved adjacent the webs to expose the webs and the bosses, said piston provided with circumferential slots between the piston head and the piston skirt portion, and with a longitudinal slot extending from the open end of the skirt to one of the circumferential slots.

6e 13. 2. In a piston for an internal combustion engine the combination of a head comprising a head disc and a peripheral flange having ring grooves, **Per I** therein, a pair of chordal webs, substantially rectangular in shape and located opposite each other in the piston, connected integrally at their upper edges to the peripheral flange of the piston, diametrically opposite wrist pin bosses, one in each of said webs, a skirt for said piston integrally connected to each of the side edges of the webs and cut away so as to expose each of the rectangular webs and the piston pin bosses from the outside of the piston, said piston being provided with circumferential slots between the skirt and head and with a longitudinal slot extending from one of the circumferential slots to the open end of the piston. (G'/Cls. 3-12)

14. 7c In a piston for an internal combustion engine, the combination of a head provided with having ring grooves therein, a pair of webs integral with and dependent from said head and located opposite each other, diametrically oppositely disposed wrist pin bosses, one in each of said webs, a skirt for said piston, integrally connected to each of the side edges of the webs, said piston being provided with circumferential slots between the skirt and head and with a longitudinal slot extending from one of the circumferential slots to the open end of the piston.

15. 8c In a piston for an internal combustion engine, the combination of a head and a pair of cordal webs sub-

stantially rectangular in shape, located opposite each other in the piston and connected integrally at their upper edges to the piston head, diametrically oppositely disposed wrist pin bosses, one in each of said webs, and

—3—

364997—26

I 898

a skirt for said piston integrally connected to each of the side edges of the webs, said piston being provided with circumferential slots between the skirt and head and with a longitudinal slot extending from one of the circumferential slots to the open end of the piston.

16. 9c In a piston for an internal combustion engine, the combination of a head, webs integrally connected to said head and dependent therefrom, oppositely disposed piston pin bosses mounted one in each of said webs and integral therewith, a skirt for said piston integrally connected to each of said webs and extending beyond the same, said piston provided with circumferential slots between the head and skirt and with a longitudinal slot connecting one of said circumferential slots and the open end of the skirt of the piston.

10c 17. In a piston for an internal combustion engine, the combination of a head having ring grooves therein, a plurality of cordal webs integrally connected with the piston head and extending downwardly therefrom, oppositely disposed piston pin bosses, integral with said webs and mounted therein, a skirt for said piston longer than said webs and interconnected at the side edges of the webs to each of said webs, said piston being provided with circumferential slots between the head and skirt and with a longitudinal slot connecting one of said circumferential slots with the open end of the skirt.

Insert

D G

—4—

364997—27

I 899

REMARKS.

Rather than amend the claims applicant has cancelled claims 8 to 11 inclusive and rewritten the same. Applicant does not agree that the expressions are alternative and does not abandon any of the matter originally claimed in claims 8 to 11 but intends that the new claims

shall cover the piston illustrated in the drawings and all of the mechanical equivalents thereof. A supplemental oath is filed herewith.

Respectfully submitted,

B. D. WATTS,

Attorney for Applicant.

Jan. 20, 1922.

—5—

364997—28

(Mail Room U. S. Patent Office Jan 1922)

SUPPLEMENTAL OATH.

STATE OF OHIO }
CUYAHOGA COUNTY } ss.

I, Frank Jardine, whose application for Letters Patent for an improvement in Pistons, serial No. 364,997, was filed in the United States Patent Office on or about March 11th, 1920, being duly sworn deposes and says that the subject matter of the foregoing amendment attached hereto and containing new claims 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, was part of his invention, was invented before he filed his original application above identified for such invention, was not known or used before his invention, was not patented or described in a printed publication in any country more than two years before his application, was not patented in a foreign country on an application filed by himself or his legal representatives or assigns more than twelve months before his application, was not in public use or on sale in this country for more than two years before the date of his application, and has not been abandoned.

FRANK JARDINE.

Sworn to before me and signed in my presence this 16th day of January, 1922.

MERLE B. PRICE,

(Notarial Seal)

Notary Public.

364997—29

(Mailed Patent Office Jan 30 1922)

2-260

Div. 12 Room 322

Paper No. 9

Address only

"The Commissioner of Patents,
Washington, D. C.,"
and not any official by name.

Ch-D

All communications respecting this
application should give the serial number,
date of filing, title of invention, and
name of the applicant.

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Washington, Jan. 30, 1922

B. D. Watts,
451 Lennox Bldg.,
East 9th & Euclid Ave.,
Cleveland, Ohio.

Please find below a communication from the EXAM-
INER in charge of the application of Frank Jardine, Filed
Mar. 9, 1921, Serial No. 450,898, PISTONS.

THOMAS E. ROBERTSON,
Commissioner of Patents.

Responsive to the amendment of Jan. 23, 1922.

Claims 1, 2 and 3 are rejected as being unpatentable
over Claim 4 in view of

Ricardo, 1,294,833, Feb. 18, 1919 (74-108)

Claims 5, 6 and 7 are rejected as being substantially
duplicates of each other. Applicant may select either one
of these claims that he desires.

Claims 9 to 17 inclusive are rejected as being unpat-
entable over claim 8 in view of Ricardo, *supra*. Appli-
cant's alleged invention involves merely the slitting of
the curved guide members or slippers shown by Ricardo.
Inasmuch as this feature appears to be the only patent-
able novelty over the reference, the claims in this case
are unnecessarily multiplied and applicant is required to
cut the number of claims down in proportion to the pat-

entable subject matter contained in the case. See in re Duncan 276 O. G. 211.

Claims 4 and 8 appear allowable.

P. P. PIERCE,

Examiner.

364997—30

V. I. C.

(Mail Room U. S. Patent Office Feb 6 1922)

Division 12, Paper No. 10

Feb 7 1922

U. S. Patent Office.

IN THE UNITED STATES PATENT OFFICE

Applicant : Frank Jardine.

Invention : Pistons.

Serial No. : 450,898.

Filed : Renewal.

Div. 12, Ch. 1.

Room 322.

Cleveland, Ohio.

February 2nd, 1922.

Hon. Commissioner of Patents,
Washington, D. C.

G Sir:—

Responsive to Office Action dated January 30th, 1922. Cancel claims 1, 2, 3, 5, 7, 11, and 12, and renumber the remaining claims consecutively.

REMARKS

Applicant has materially reduced the number of claims in the case, and asks that the remaining claims be allowed. These cancellations bring the case well within the practice in this art, as indicated by the patents to Mooers, 1,402,309, Jan. 3, 1922, and Turner, 1,312,879, and 1,312,880, Aug. 12, 1919.

On reconsideration, applicant believes the Examiner will agree that the claims recite combinations of elements, and are not, as the Examiner suggests, merely the piston of the Ricardo patent with the addition of a slot. This follows from the fact that the addition of the slot changes the structure and the resistance to, and the disposal of, the forces within and without the piston when the piston is in use. Pressures operating on the piston, will oper-

ate in different directions and must be met and handled in such a way as to realize the advantages sought for.

364997—31

The Ricardo piston has not been generally adopted commercially, while the claimed pistons are in quite general and successful commercial use. Consequently, the various parts operate in a different manner from the Ricardo piston.

We have carefully considered the decisions of ex parte Duncan and in re Duncan. Duncan's case was an extraordinary one, requiring drastic handling, we are satisfied that neither the Commissioner nor Judge Van Orsvel intended to depart from the well established rule set up in the following cases:

: In *Dick v. Underwood*, 246 F. R., 309, Judge Hazel said, at p. 313:—

“Criticism is made upon the multiplication of claims; but, as they all relate to the same subject-matter and are both broad and specific, they were undoubtedly differently phrased to protect the patentee against any possible prior inventions, an expedient that does not invalidate them. *Parke & Davis & Co. v. H. K. Mulford Co.* (C. C.) 189 Fed. 95, affirmed 196 Fed. 496, 116 C. C. A. 262.”

In *Parke v. Mulford*, 189 F. R., 95, Judge Hand said, at p. 102 and 103:—

“The first of the technical objections is because of the vague character of the claims of the patent and their fraudulent reduplication. I can see no basis whatever for this contention. As I have already said, the claims were not for the active principle, nor for the product of the process. Of course claims for a product not defined as the product of a process must contain in themselves adequate differentia, or they will not be good (*Cochrane v. Baddische Anilin Fabrik*, 111 U. S. 293, 310, 4 Sup. Ct. 455, 28 L. Ed. 433); but the only valid objection to multiplication of claims is when it appears that the patentee is trying deceitfully to go beyond the fair scope of his invention. I can see no evidence of that here, and the fact that I have sustained the broader claim is a complete answer to such a position. That Takamine in a number of instances should have added other claims more circumscribed in their scope was natural enough, and what every prudent solicitor ought to do.

No one can in advance know how far anticipations will go or how little in the end his patent will cover. There is nothing improper, so far as I can see, in first putting your claims as broadly as in good faith you can, and then, *ex abundanti cautela*, following them successively with narrower claims designed to protect you against possible anticipations of which you are not yet aware. Indeed, the very case upon which the defendant relies (*Matheson v. Campbell*, 78 Fed. 910, 917, 24 C. C. A. 384) shows the necessity of claims as broad as one can honestly support. If

—2—

364997—32

any one of the specified differentia of the claim is missing, the defendant's product does not infringe; if any anticipation includes all the differentia, the claim is bad. To pass between this Scylla and the Charybdis, I think a patentee may fairly be entitled to bend sails upon many yards." (*Italicizing ours.*)

Indeed, the decision of *ex parte Halverson*, 283 O. G. 182, is a warning that *ex parte Duncan* is not to change the well established practice which has been followed in the Federal cases we have cited.

In addition to the reasoning of the courts in the cited cases, we might add that we have found no record of any patent which has been held invalid because of the multiplicity of claims, though many patents have been assailed on that ground. On the contrary, the number of patents which have failed because of too few claims is legion. The equity spirit, which should prevail in adjudicating the claims on meritorious inventions, dictates that the doubt be resolved in favor of allowing the claims, and not by restricting them, endanger the protection on the invention.

If we were to limit ourselves to claim 8 alone of the group including 8 to 17, and prior art, not now developed, was found to anticipate this claim, that feature of the invention would be defeated; and the inventor would be without protection thereon. Such prior art might not, however, as frequently happens; anticipate the narrower claims such as 9 to 17 inclusive.

It has been our observation that settled doctrines of law, like that established by the Federal authorities which we have cited, are often disturbed by some extraordinary case or some extraordinary view of some particular court, and that much harm is done by an effort to follow the extraordinary case or the extraordinary view, and

that ultimately the law goes back into the established channel. It would be regrettable, if the very useful invention here under consideration, were in any way impaired

—3—

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by departing from the established law as set forth in the Federal decisions which we have cited.

As a matter of precaution, we say that the cancellation of claims made in this amendment, has not been made with the purpose of abandoning the subject matter thereof, but, merely to meet the Examiner's requirement with regard to the number of claims, and because the remaining claims cover the substance of those cancelled.

An allowance is requested.

Respectfully,

B. D. WATTS,

BDW:F

Attorney for Applicant.

364997—34

(Patent Office May 6-1922 Mailed)

2—260

Div. 12 Room 322

Paper No. 11

Address only

"The Commissioner of Patents,
Washington, D. C.,"
and not any official by name.

All communications respecting this application should give the serial number, date of filing, title of invention, and name of the applicant.

Ch-D

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Washington

May 6, 1922

B. D. Watts,
451 Lennox Bldg.,
East 9th & Euclid Ave.,
Cleveland, Ohio.

Please find below a communication from the EXAMINER in charge of the application of Frank Jardine, Filed Mar. 9, 1921, Serial No. 450,898, PISTONS.

THOMAS E. ROBERTSON,

Commissioner of Patents.

Responsive to the amendment of Feb. 6, 1922.

Claim 4, 5, 7, 8, 9 and 10 are rejected as being unpatentable over claim 3 in view of Ricardo, of record. The remarks submitted by applicant on Feb. 6, 1922 and the decisions therein cited have been carefully noted but it is not thought that they are in point with the question at issue. The Examiner does not contend that a patent would be rendered invalid by reason of the fact that the claims therein have been unduly multiplied or even that they were duplicates of each other. It is thought that applicant should point out the patentable difference between the several claims. At the present time the Examiner is unable to discover any such patentable difference between the same.

The remaining claims are allowed.

P. P. PIERCE,

Examiner.

V. I. C.

364997—35

(Application Room Jun 15 1922 U. S. Patent Office)

Division 12, Paper No. 12

Jun 16 1922

U. S. Patent Office

IN THE UNITED STATES PATENT OFFICE

In the application of
Frank Jardine,
For Pistons
Serial No. 450,898,
Filed March 9, 1921.

Cleveland, Ohio, May June 14 1922.

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

Applicant responds as follows to the official action dated May 6, 1922.

It is noted that claims 1, 2, 3 and 6 have been allowed, but that claims 4, 5, 7, 8, 9 and 10 are rejected as unpatentable over allowed claim 3 in view of Ricardo.

It is further noted that the examiner thinks the claims should be patentably different and that such difference between the various claims should be pointed out.

Applicant believes that it is not the rule to require that the various claims in a case should be patentably dif-

ferent from each other in the sense that claims in different applications are required to be distinguished. Where the claims in one application must set forth a structure patentable over structure allowable in another case, the claims in a single application need not be so clearly distinguished. If another rule is followed it would be impossible to obtain broad and narrow claims of the same structure in a single application, as this has been repeatedly held to be not only permissible but essential in proper soliciting of patents. (See two cases cited in applicants amendment dated February 6, 1923 in this application.)

—1—

364997—36

Although it has been held by the courts that every claim of a patent is to be considered as setting forth a complete and independent invention, this practice has not been followed to the extent which the language might lead one to expect, since it has been repeatedly held that if two or more claims appear to be alike they will, if practicable, be held to differ rather than to agree. (See Walker on patents 5th Addition page 226, paragraph 177.)

This practice was followed in each of the cases quoted from in applicant's last action where broad and narrow claims which differ in phrasing were held to be valid.

Furthermore, applicants contention that claims in an application need not differentiate patentably over each other is sustained by the case of *Wm. B. Scaife & Sons Co v. Falls City Woolen Mills*. (Circuit Court of Appeals, 209 F. R. 210, November 4, 1913.) The pertinent part of this Circuit Court decision is as follows, the italics being ours.

This patent is one having a series of twelve claims. It is sometimes said that in such case each claim should be considered as a separate patent. This statement, accurate enough for some purposes, is misleading, if followed too far; but we must at least say that, usually, proper construction and effect can be given to each claim only by differentiating it from the other claims. *Each claim should be capable of such differentiation else it has no right to exist*; and the difficulty often found in doing so, caused by repetition and confusion, does not effect the propriety of this rule of construction in a normal case where it can be clearly applied. *Each claim*

should be directed at some function, step, or advantage to give it individuality; it should have a characterizing thought of point by which it can be identified; and, of the court which is to construe the claim can find this dominant thought, its task will be simplified.

Assuming the rule to be as set forth by applicant, the distinctions between the various claims will now be pointed out. Claims 4, 8 and 10 belong to the same general group, involving chordal webs differently defined in the various claims, each claim being distinguished from claim 3 by limitations to the specific kind of webs, namely, chordal webs as contrasted with other types of webs

—2—

364997—37

which was described by the broader wording of claim 3.

Similarly claims 5, 7 and 9 belong to a single group where each of the claims is distinguished from the others by certain limitations. For example, claim 5 sets forth a skirt relieved adjacent the webs, claim 7 sets forth a pair of webs with a skirt connected to the side edges of the webs, and claim 9 sets forth the skirt extending beyond the webs. In addition to being thus different from one another the claims are distinguished from claim 3 among other things in these particulars above mentioned.

It has been our personal experience that patents are often held invalid because of having too few claims, but that multiplicity of claims has never been the cause of a patent being held invalid. If a court should decide there are too many claims it may declare certain ones thereof invalid without invalidating the whole patent. Furthermore, if a patent is granted with a limited number of claims it may and in fact often does happen that a meritorious invention is lost to the inventor through non-infringement of anyone of the claims granted, whereas if additional claims stating the invention is slightly different terms, has been issued the competing structure would have been technically, as it was actually, an infringement. By insisting on the claims in this case applicants attorney is inspired in by the belief that both the examiner and himself are working to the common end of issuing patents covering the invention in a manner to assure to the inventor the full benefit of his invention.

The accomplishing of anything less than this unjustly deprives the inventor of what was rightfully his and reflects on the workmanship of both the attorney and examiner.

It is believed that the claims now in the case are allowable, and for the many reasons heretofore cited

—3—

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should be granted. An early allowance is earnestly requested.

Respectfully submitted,

B. D. WATTS.

364997—39

(Mail Room Jul 21 1922 U. S. Patent Office)

Division 12, Paper No. 13

Jul 22 1922

U. S. Patent Office

IN THE UNITED STATES PATENT OFFICE

In the application of
Frank Jardine,
For PISTONS,
Serial No. 450,898
Filed March 9, 1921.

Cleveland, Ohio, July 19, 1922.

Hon. Commissioner of Patents,
D Washington, D. C.

Sir:

Enter the following claim as claim 11.

11. In a piston for an internal combustion engine, the combination of a piston head having a depending ring flange, two pairs of curved guide members oppositely disposed with relation to the axis of the piston, the curved members of each pair thereof being separated from the ring flange and from each other by continuous air gaps, wrist pin bosses and webs connecting the wrist pin bosses with certain of said guide members, said guide members piston head and webs being united in an integral unitary structure.

Insert

F¹

REMARKS.

Claim 11 presented herewith resembles allowed claim 1, closely, and it is believed to be allowable. An early allowance is requested.

Respectfully,

B. D. WATTS.

364997-40

(Patent Office Oct 5 1922 Mailed)

2-260

Div. 12 Room 322

Paper No. 14

Address only

"The Commissioner of Patents,
Washington, D. C.,"
and not any official by name.

All communications respecting this application should give the serial number, date of filing, title of invention, and name of the applicant.

Ch-D

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Washington Oct. 5, 1922

B. D. Watts,
451 Lennox Bldg.,
East 9th St. & Euclid Ave.,
Cleveland, Ohio.

Please find below a communication from the Examiner in charge of the application of Frank Jardine, Filed Mar. 9, 1921, Serial No. 450,898, PISTONS.

THOMAS E. ROBERTSON,
Commissioner of Patents.

Amended July 21, 1922.

Claims 1, 2, 3, 6 and 11 are allowed.

Claims 4, 5, 7, 8, 9 and 10 are again rejected upon the references and for the reasons given in the last office action.

Referring to applicant's remarks submitted June 15, 1922, it is thought that the arguments and authorities

therein set forth are not in point with the issue now being discussed relative to the case at bar. The Examiner has never contended that the various claims in a case should be patentably different from each other in the sense that claims in different applications are required to be different. But, the Examiner does maintain, that where a claim clearly and completely sets forth the applicant's contribution to the art to which his invention appertains, no good reason is seen, and none has been advanced for allowing a large number of claims, which not only do not include anything new and patentable in addition to the novel feature, already covered, but do not even describe the novel and patentable feature itself in slightly different terms. In the present case applicant is attempting to add old and unpatentable features to his invention for which he has already been

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450,898-2

granted protection by the allowed claims.

If the rejected claims are allowable they are so not because they include "cordal webs" (as against "webs" set forth in claim 3), or because the "webs" extend downwardly from the head, (whereas claim 3 only states that the webs are "integral with the head"), or because the skirt is "integrally connected to each of the side edges of the webs," or because the "webs are substantially rectangular in shape" or because the "skirt extends beyond the webs."

Not any of the above structural limitations, taken singly or in the aggregate, which characterize the chief difference between the allowed and rejected claims, are patentable over Ricardo, of record. For, it is to be noted that Ricardo shows a piston whose head and skirt are separated from each other by circumferential slots, a plurality or a pair of cordal webs integrally with and extending downwardly from the head, said webs being in parallel relation to each other, and having opposed wrist pin bosses, said webs being rectangular in shape and having joined thereto at their side edges the skirt of the piston which skirt extends below the said webs. Applicant's only contribution to the art, as developed by Ricardo, is the splitting of the guide sections or slippers. For this he has ample protection in the allowed claims.

As heretofore stated, it is thought to be well settled in the law that a claim to be properly allowable must define something novel and patentable over what forms the

Jardine Patent No. 1,763,523

3083

basis for patentability in the allowed claims. To do otherwise would be to invite controversy and litigation.

The foregoing considerations dispose of the issue in the case and as the Examiner is firmly of the opinion that the rejection of May 6, 1922 was proper, the same

364997-42

450,899-3

is made final from which applicant may appeal to the board of Examiners-in-Chief if he so desires.

P. P. PIERCE,

V.I.C.

Examiner, Div. 12.

364997-43

(Patent Office Apr 5 1923 Mailed)

2-260

Div. 12 Room 322

Paper No. 15

Address only

"The Commissioner of Patents,
Washington, D. C.,"
and not any official by name.

All communications respecting this
application should give the serial number,
date of filing, title of invention, and
name of the applicant.

Ch-D

Copy sent applicant and assignee.

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Washington, April 5, 1923.

B. D. Watts,
451 Lennox Bldg.,
East 9th & Euclid Ave.,
Cleveland, Ohio.

Please find below a communication from the Examiner in charge of the application of Frank Jardine, Filed Mar. 9, 1921, Serial No. 450,899 Pistons.

THOMAS E. ROBERTSON,
Commissioner of Patents.

The following claims are suggested to the applicant for the purpose of interference:

—A piston comprising a head, a skirt separated at its periphery from the head, and pin bosses connected to the head and to the upper and lower parts of the skirt, said skirt being split longitudinally at one side between its connections to said bosses.

A piston comprising a head portion, a skirt portion, two separated pin bosses, connecting flanges in the zone of the bosses and extending from the bosses to the skirt on both sides of the bosses, connecting means from each of the bosses to the head portion, the skirt portion being entirely separated from the head portion except through the boss connections, and the skirt portion being split longitudinally of the piston to permit free expansion and contraction.

A piston comprising a head portion, a skirt portion, two separated pin bosses, connecting flanges in the zone of the bosses and extending from the bosses to the skirt on both sides of the bosses, connecting means from each of the bosses to the head portion, the skirt portion being entirely separated from the head portion except through the boss connections, and the skirt portion being split longitudinally of the piston to permit free expansion and contraction and the skirt portion being cut away adjacent the outer ends of the piston bosses.

A piston for internal combustion engines comprising in combination a head portion having an end wall and a side wall, a guide portion having on one side a cylinder-engaging part disposed to take the angular thrust of a connecting rod during one stroke of the piston, said cylinder-engaging part being separated at its upper end from said side wall by an air gap and being split longitudinally to accommodate expansion incident to the heating of the piston, a pair of separated pin bosses, and walls integrally uniting said bosses, the guide portion and the head portion.

364997—44

450,898—2

A piston comprising a head and body, internal yielding ribs supporting the head and body, and means on said ribs adapted to form engaging connection with operable parts for said piston.

A piston open at one end and having a packing ring supporting portion and a cylinder engaging portion, said cylinder engaging portion having a slot which is cut

through the thickness of its peripheral wall and extending from the open end of the piston to said ring supporting portion, a pair of wrist pin bearings depended from said ring supporting portion separated from said cylinder engaging portion, and tying means extending from each of said wrist pin bearings each being co-operably connected at their opposite ends to said cylinder engaging portion.

A piston for internal combustion engines comprising a head having downwardly extending resilient arms carrying curved guide members, said head being of less diameter than the diameter of the guide members.

In a piston of the class described, a cup-like head comprising a pressure receiving end and a wall portion, a skirt circumferentially disconnected from the wall portion of the head and divided from end to end, and skirt carriers connecting said skirt to the pressure receiving end, said skirt carriers being disconnected from the wall portion of the head and susceptible of being slightly flexed radially.

A piston having a head with top and side walls in combination with a guide structure connected thereto and comprising diametrically opposite cylinder-engaging parts formed with air spaces between their upper edges and the bottom edge of the side wall of the head, wrist pin bosses between the cylinder-engaging parts, and means joining said bosses and cylinder-engaging parts together, the said joining means being resiliently yieldable and arranged not to engage the cylinder.

A piston having a head and a cross-head structure connected thereto and comprising diametrically opposite slippers, wrist pin bosses between the slippers and means joining said bosses and slippers together, the said joining means being resiliently yieldable.

A piston comprising a head, a skirt having resilient sections separated from said head by a slit extending continuously around the piston, and means for yieldingly connecting said skirt sections with said head.

Failure to make the above claims within thirty days from the date of mailing of this letter will be taken as a disclaimer of the subject matter covered thereby.

R. M. WEAVER,

V.I.C.

Acting Examiner, Div. 12.

364997-45

(Mail Room May 3 1923 U. S. Patent Office)

Division 12, Paper No. 16

May 4 1923

U. S. Patent Office

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE
Washington, D. C.

Applicant Frank Jardine
Invention Pistons
Serial No. 450,898
Filed March 9, 1921

E Cleveland, Ohio, April 30th, 1923.

Hon. Commissioner of Patents,
Washington, D. C.

Sir:—

In response to the Official Action dated April 5, 1923, in which certain claims were suggested to applicant for purpose of interference, applicant amends as follows:

Insert the following claims as Claims 11 to 21 inclusive.

E **11. 12E** A piston comprising a head, a skirt separated at its periphery from the head, and pin bosses connected to the head and to the upper and lower parts of the skirt, said skirt being split longitudinally at one side between its connections to said bosses.

Per G **12. 13E** A piston comprising a head portion, a skirt portion, two separated pin bosses, connecting flanges in the zone of the bosses and extending from the bosses to the skirt on both sides of the bosses, connecting means from each of the bosses to the head portion, the skirt portion being entirely separated from the head portion except through the boss connections, and the skirt portion being split longitudinally of the piston to permit free expansion and contraction.

—1—

364997—46

13. 14E A piston comprising a head portion, a skirt portion, two separated pin bosses, connecting flanges in the zone of the bosses and extending from the bosses to

the skirt on both sides of the bosses, connecting means from each of the bosses to the head portion, the skirt portion being entirely separated from the head portion except through the boss connections, and the skirt portion being split longitudinally of the piston to permit free expansion and contraction and the skirt portion being cut away adjacent the outer ends of the piston bosses.

14. 15E A piston for internal combustion engines comprising in combination a head portion having an end wall and a side wall, a guide portion having on one side a cylinder-engaging part disposed to take the angular thrust of a connecting rod during one stroke of the piston, said cylinder-engaging part being separated at its upper end from said side wall by an air gap and being split longitudinally to accommodate expansion incident to the heating of the piston, a pair of separated pin bosses, and walls integrally uniting said bosses, the guide portion and the head portion.

15. 16E A piston comprising a head and body, internal yielding ribs supporting the head and body, and means on said ribs adapted to form engaging connection with operable parts for said piston.

16. 17E A piston open at one end and having a packing ring supporting portion and a cylinder engaging portion, said cylinder engaging portion having a slot which is cut through the thickness of its peripheral wall and extending from the open end of the piston to said ring supporting portion, a pair of wrist pin bearings depended from said ring supporting portion and separated from said cylinder engaging portion, and tying means extending from each of said wrist pin bearings each being co-operably connected at their opposite ends to said cylinder engaging portion.

—2—

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17. 18E A piston for internal combustion engines comprising a head having downwardly extending resilient arms carrying curved guide members, said head being of less diameter than the diameter of the guide members.

18. 19E In a piston of the class described, a cup-like head comprising a pressure receiving end and a wall portion, a skirt, circumferentially disconnected from the wall portion of the head and divided from end to end, and skirt carriers connecting said skirt to the pressure receiving end, said skirt carriers being disconnected from the wall portion of the head and susceptible of being slightly flexed radially.

19. 20E A piston having a head with top and side walls in combination with a guide structure connected thereto and comprising diametrically opposite cylinder-engaging parts formed with air spaces between their upper edges and the bottom edge of the side wall of the head, wrist pin bosses between the cylinder-engaging parts, and means joining said bosses and cylinder-engaging parts together, the said joining means being resiliently yieldable and arranged not to engage the cylinder.

20. 21E A piston having a head and a cross-head structure connected thereto and comprising diametrically opposite slippers, wrist pin bosses between the slippers and means joining said bosses and slippers together, the said joining means being resiliently yieldable.

21. 22E A piston comprising a head, a skirt having resilient sections separated from said head by a slit extending continuously around the piston, and means for yieldingly connecting said skirt sections with said head.

REMARKS.

Kindly note a change of address of applicant's attorney from 451 Lennox Building, East 9th and Euclid

—3—

364997—48

Avenue to 1213 Ulmer Building, both in Cleveland, Ohio.

B. D. WATTS,

Attorney for Applicant.

—4—

364997—49

INTERFERENCE.

Interference No. 49569

Name, Frank Jardine,

Serial No. 450,898

Title, PISTONS

Filed, Mar. 9, 1921

Interference with R. E. Day; G. A. Taylor, H. E. Maynard; S. D. Hartog; E. C. Long and E. J. Gulick.

"A" (1)
Paper No. 17

DECISIONS OF

Primary Examiner,
Ex'r of Interferences, Adverse
Board,
Commissioner,

Dated,
Dated, June 2/24
Dated,
Dated,

REMARKS:

.....
.....
This should be placed in each application or patent involved in interference in addition to the interference letters by Primary Examiner

364997-50

(U. S. Patent Office Jul 7 1923 Mailed)

2-213

Forwarded from 12 Div. to
Examiner of Interferences.

June 15, 1923

Ch-D

Paper No. 18

[Interference.]

"A" (1)

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Washington, D. C.

Copy sent assignee.

B. D. Watts,
451 Lennox Bldg.,
East 9th & Euclid Ave.,
Cleveland, Ohio.

Please find below a copy of a communication from the Examiner concerning the application of Frank Jardine, Filed Mar. 9, 1921, Serial No. 450,898, PISTONS.

Very respectfully,

THOMAS E. ROBERTSON,
Commissioner of Patents.

Room No. 322

Address only
The Commissioner of Patents
Washington, D. C.

49569

The case, above referred to, is adjudged to interfere with others, hereafter specified, and the question of priority will be determined in conformity with the Rules.

The statement demanded by Rule 110 must be sealed up and filed on or before Aug. 27, 1923, with the subject of the invention, and name of party filing it, indorsed on the envelope. The subject-matter involved in the interference is

Count.

1. A piston for internal combustion engine comprising in combination a head portion having an end wall and a side wall, a guide portion having on one side a cylinder-engaging part disposed to take the angular thrust of a connecting rod during one stroke of the piston, said cylinder-engaging part being separated at its upper end from said side wall by an air gap and being split longitudinally to accommodate expansion incident to the heating of the piston, a pair of separated pin bosses, and walls integrally uniting said bosses, the guide portion and the head portion.

This interference involves your application above identified and an application for PISTONS, filed by Ray E. Day, of 3825 North 24th St., Tacoma, Wash., whose attorney is Clarence E. Mehlhope, of Marquette Bldg., Chicago, Ill.,

An application for PISTONS, filed by George A. Taylor, of 164 Dana Avenue, Hyde Park, Mass., whose attorney is Macleod, Calver, Copeland and Dike, of Tremont Bldg., Boston, Mass.,

An application for PISTONS, filed by Howard E. Maynard, of 700 Calvert Avenue, Detroit, Michigan, whose

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450,898—2

attorney is Whittemore, Hulbert & Whittemore, of Penobscot Bldg., Detroit, Michigan,

An application for PISTONS, filed by Stephen D. Hartog, of 3219 Natural Bridge Avenue, St. Louis, Mo., whose attorney is Rippey and Kingsland, of The Rialto Bldg., St. Louis, Mo.,

An application for INTERNAL COMBUSTION ENGINE PISTONS filed by Elmer C. Long, of 1037 Main St., Quincy, Illinois, whose attorney is Herbert G. Fletcher, of 321 International Life Bldg., c/o Knight Bros., St. Louis, Missouri, and

An application for PISTONS, filed by Edward J. Gulick, of P. O. Box 553, Elkhart, Indiana, whose attorney is Milton Tibbetts, of c/o Packard Motor Car Company, Detroit, Michigan, and whose assignee is the Cleveland Trust Company, of Cleveland, Ohio, a corporation of Ohio.

The relation of the count of the interference to the claims of the respective parties is as follows:

Count Day Gulick Hartog Jardine Long Maynard Taylor

1 14 15 30 15 10 12 13.

adverse

P. P. PIERCE,

V. I. C.

Examiner, Div. 12.

364997-52

“(B)” (2)

INTERFERENCE.

Interference No. 49570

Paper No. 19

Name, Frank Jardine

Serial No. 450,898

Title, Pistons

Filed, Mar. 9, 1921.

Interference with R. E. Day; G. A. Taylor; E. C. Long;

H. E. Maynard; S. D. Hartog and E. J. Gulick

DECISIONS OF

Primary Examiner,
Ex'r of Interferences, **Adverse**
Board,
Commissioner,

Dated,
Dated, **Apr. 8/24**
Dated,
Dated,

REMARKS:

.....
.....
This should be placed in each application or patent involved in interference in addition to the interference letters by Primary Examiner.

364997-53

(U. S. Patent Office Jul 7 1923 Mailed)

2-213

Forwarded from 12 Div. to
Examiner of Interferences.
June 15, 1923

Ch-D

Paper No. 20
[INTERFERENCE.]
“(B)” (2)

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Washington, D. C.

Copy sent assignee

B. D. Watts,

451 Lennox Bldg., East 9th & Euclid Ave.,
Cleveland, Ohio.

Please find below a copy of a communication from the Examiner concerning the application of Frank Jardine, Filed Mar. 9, 1921, Serial No. 450,898, **PISTONS**, Renewal of application filed March 11, 1920 Ser. No. 364,997.

Very respectfully,

THOMAS E. ROBERTSON,

Commissioner of Patents.

Room No. 322

Address only

The Commissioner of Patents
Washington, D. C.

49570

The case, above referred to, is adjudged to interfere with others, hereafter specified, and the question of priority will be determined in conformity with the Rules.

The statement demanded by Rule 110 must be sealed up and filed on or before Aug 27 1923, with the subject of the invention, and name of party filing it, indorsed on the envelope. The subject-matter involved in the interference is

Count.

1. A piston comprising a head and body, internal yielding ribs supporting the head and body, and means on said ribs adapted to form engaging connection with operable parts for said piston.

This interference involves your application above identified and an application for **PISTONS**, filed by Ray E. Day, of 3825 North 24th St., Tacoma, Wash., whose attorney is Clarence E. Mehlhope, of Marquette Bldg., Chicago, Illinois,

An application for **PISTONS**, filed by George A. Taylor, 164 Dana Ave., Hyde Park, Mass., whose attorney is Macleod, Calver, Copeland & Dike, of Tremont Bldg., Boston, Mass.,

An application for PISTON FOR AN INTERNAL COMBUSTION MOTOR, filed by Elmer C. Long, of 4834 Beaubien St., Detroit, Michigan, whose attorney is Herbert G. Fletcher, of 1111 International Life Bldg., St. Louis, Mo.,
364997—54

450,898—2

An application for PISTONS, filed by Howard E. Maynard, of 700 Calvert Ave., Detroit, Michigan, whose attorney is Whittemore, Hulbert, & Whittemore, of Penobscot Bldg., Detroit, Mich.,

An application for PISTONS, filed by Stephen D. Hartog, of 3219 Natural Bridge Ave., St. Louis, Mo., whose attorney is Rippey & Kingsland, of The Rialto Bldg., St. Louis, Mo., and.

An application for PISTONS, filed by Edward J. Gulick, of P. O. Box 553, Elkhart, Indiana, whose attorney is Milton Tibbetts, of c/o Packard Motor Car Company, Detroit, Michigan, and whose assignee is the Cleveland Trust Company, of Cleveland, Ohio, a corporation of Ohio.

The relation of the count of the interference to the claims of the respective parties is as follows:

Count Day Hartog Gulick Jardine Long Maynard Taylor

1 15 1 30 16 13 13 14.

P. P. PIERCE,

V.I.C.

Examiner, Div. 12.

364997—55

2—079

INTERFERENCE

Interference No. 49571

Name, Frank Jardine,

Serial No. 450,898

Title, PISTONS

Filed, Mar. 9, 1921

Interference with R. E. Day; G. A. Taylor; A. Spillman;

H. E. Maynard; E. C. Long; E. J. Gulick (Kelm added)

“(3)”

Paper No. 21

DECISIONS OF

Primary Examiner,
Ex'r of Interferences, **Adverse**
Board,
Commissioner,

Dated,
Dated, **June 2/24**
Dated,
Dated,

REMARKS:

.....
.....
This should be placed in each application or patent involved in interference in addition to the interference letters by Primary Examiner.

364997-56

(U. S. Patent Office Jul 7 1923 Mailed)

2-213

Forwarded from 12 Div. to
Examiner of Interferences.

June 15, 1923
Ch-D

Paper No. 22
[INTERFERENCE.]

"C" (3)

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE
Washington, D. C.

Copy sent assignee.

B. D. Watts,
451 Lennox Bldg.,
East 9th & Euclid Ave.,
Cleveland, Ohio.

Please find below a copy of a communication from the Examiner concerning the application of Frank Jardine, Filed Mar. 9, 1921, Serial No. 450,898, PISTONS renewal of application filed March 11, 1920, Ser. No. 364,997.

Very respectfully,

THOMAS E. ROBERTSON,

Commissioner of Patents.

Room No. 322

Address only

The Commissioner of Patents
Washington, D. C.

49571

The case, above referred to, is adjudged to interfere with others, hereafter specified, and the question of priority will be determined in conformity with the Rules.

The statement demanded by Rule 110 must be sealed up and filed on or before Aug. 27, 1923, with the subject of the invention, and name of party filing it, indorsed on the envelope. The subject-matter involved in the interference is

Count.

1. A piston open at one end and having a packing ring supporting portion and a cylinder engaging portion, said cylinder engaging portion having a slot which is cut through the thickness of its peripheral wall and extending from the open end of the piston to said ring supporting portion, a pair of wrist pin bearings depended from said ring supporting portion and separated from said cylinder engaging portion, and tying means extending from each of said wrist pin bearings each being co-operably connected at their opposite ends to said cylinder engaging portion.

This interference involves your application above identified and an application for PISTONS, filed by Ray E. Day, of 3825 North 24th St., Tacoma, Wash., whose attorney is Clarence E. Mehlhope, of Marquette Bldg., Chicago, Ill.,

An application for PISTONS, filed by George A. Taylor, of 164 Dana Ave., Hyde Park, Mass., whose attorney is Macleod, Calver, Copeland and Dike, of Tremont Bldg., Boston, Mass.,

An application for ENGINE PISTONS, filed by Albert Spillman, of 261 Payne Ave., North Tonawanda, N. Y.,

364997—57

450,898—2

whose attorney is Geyer & Popp, of 619 Brisbane Bldg., Buffalo, N. Y.,

An application for PISTONS, filed by Howard E. Maynard, of 700 Calvert Avenue, Detroit, Michigan, whose attorney is Whittemore, Hulbert & Whittemore, of Penobscot Bldg., Detroit, Michigan,

An application for PISTON filed by Elmer C. Long, of 1037 Main Street, Quincy, Illinois, whose attorney is Herbert G. Fletcher, of International Life Bldg., St. Louis, Mo., and

An application for PISTONS, filed by Edward J. Gulick, of P. O. Box 553, Elkhart, Ind., whose attorney is Milton Tibbetts, of c/o Packard Motor Car Co., Detroit, Michigan, whose assignee is the Cleveland Trust Company, of Cleveland, Ohio, a corporation of Ohio.

The relation of the count of the interference to the claims of the respective parties is as follows:

Count	Day	Gulick	Jardine	Long	Maynard	Spillman	Taylor
1	16	31	17	1	14	13	15.

P. P. PIERCE,

V.L.C.

Examiner, Div. 12.

364997-58

2-079

INTERFERENCE.

Interference No. 49572

Name, Frank Jardine,

Serial No. 450,898

Title, PISTONS

Filed, Mar. 9, 1921

Interference with E. J. Gulick; E. C. Long; S. D. Hartog, H. E. Maynard; A. Spillman and G. A. Taylor

"D" (4)
Paper No. 23

DECISIONS OF

Primary Examiner,
Ex'r of Interferences, **Adverse**
Board,
Commissioner,

Dated,
Dated, Apr. 10/24
Dated,
Dated,

REMARKS:

.....
.....
This should be placed in each application or patent involved in interference in addition to the interference letters by Primary Examiner.

364997-59

(U. S. Patent Office Jul 7 1923 Mailed)
2-213

Forwarded from 12 Div. to
Examiner of Interferences.

Paper No. 24
[INTERFERENCE.]

June 15, 1923
Ch-D

"D" (4)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C.

Copy sent assignee,

B. D. Watts,
451 Lennox Bldg.,
East 9th & Euclid Ave.,
Cleveland, Ohio.

Please find below a copy of a communication from
the Examiner concerning the application of Frank Jar-
dine, Filed Mar. 9, 1921, Serial No. 450,898, PISTONS re-
newal of application filed March 11, 1920, Ser. No. 364-
997.

Very respectfully,

THOMAS E. ROBERTSON,
Commissioner of Patents.

Room No. 322

Address only
The Commissioner of Patents
Washington, D. C.

49572

The case, above referred to, is adjudged to interfere
with others, hereafter specified, and the question of pri-
ority will be determined in conformity with the Rules.

The statement demanded by Rule 110 must be sealed
up and filed on or before Aug. 27, 1923, with the subject
of the invention, and name of party filing it, indorsed
on the envelope. The subject-matter involved in the in-
terference is

Count.

1. A piston having a head with top and side walls
in combination with a guide structure connected thereto
and comprising diametrically opposite cylinder-engaging
parts formed with air spaces between their upper edges

and the bottom edge of the side wall of the head, wrist pin bosses between the cylinder-engaging parts, and means joining said bosses and cylinder-engaging parts together, the said joining means being resiliently yieldable and arranged not to engage the cylinder.

This interference involves your application above identified and an application for **PISTONS**, filed by George A. Taylor, of 164 Dana Ave., Hyde Park, Mass., whose attorney is Macleod, Calver, Copeland & Dike, of Tremont Bldg., Boston, Mass.,

An application for **ENGINE PISTONS**, filed by Albert Spillman, of 261 Payne Ave., North Tonawanda, N. Y., whose attorney is Geyer & Popp, of 619 Brisbane Bldg., Buffalo, New York,

An application for **PISTONS**, filed by Howard E. Maynard, of 700 Calvert Ave., Detroit, Michigan, whose attorney is Whittemore, Hulbert & Whittemore, of Penobscot Bldg., Detroit, Mich.

364997-60

450,898-2

An application for **PISTONS**, filed by Stephen D. Hartog, of 3219 Natural Bridge Ave., St. Louis, Missouri, whose attorney is Rippey & Kingsland, of The Rialto Bldg., St. Louis, Mo.,

An application for **PISTONS FOR INTERNAL COMBUSTION MOTORS** filed by Elmer C. Long, of 1037 Main St., Quincy, Illinois, whose attorney is Herbert G. Fletcher, of c/o Knight Bros., 321 International Life Bldg., St. Louis, Mo., and

An application for **PISTONS**, filed by Edward J. Gulick, of P. O. Box 553, Elkhart, Indiana, whose attorney is Milton Tibbetts, of c/o Packard Motor Car Company, Detroit, Mich., whose assignee is the Cleveland Trust Company, of Cleveland, Ohio, a corporation of Ohio.

The relation of the count of the interference to the claims of the respective parties is as follows:

Count	Gulick	Hartog	Jardine	Long	Maynard	Spillman	Taylor
1	32	24	20	7	15	16	16.

P. P. PIEBCE,

V. I. O.

Examiner, Div. 12.

364997-61

2-079

INTERFERENCE

Interference No. 49573

Name, Frank Jardine

Serial No. 450,898

Title, Pistons

Filed, Mar. 9, 1921

Interference with E. J. Gulick; E. C. Long; H. E. Maynard; Stephen D. Hartog and R. E. Day

"E" (5)
Paper No. 25

DECISIONS OF

Primary Examiner,
Ex'r of Interferences, Adverse
Board,
Commissioner,

Dated,
Dated, Apr. 10/24
Dated,
Dated,

REMARKS:

.....
.....
This should be placed in each application or patent involved in interference in addition to the interference letters by Primary Examiner.

364997-62

(U. S. Patent Office Jul 7 1923 Mailed)

2-213

Forwarded from 12 Div. to
Examiner of Interferences.
June 15, 1923

Paper No. 26
[Interference.]
"E" (5)

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE
Washington, D. C.

Copy sent assignee

B. D. Watts,
451 Lennox Bldg.,
East 9th & Euclid Ave.,
Cleveland, Ohio.

Please find below a copy of a communication from the Examiner concerning the application of Frank Jar-

dine, Filed Mar. 9, 1921, Serial No. 450,898, PISTONS, renewal of application filed March 11, 1920, Ser. No. 364,997.

Very respectfully,

THOMAS E. ROBERTSON,
Commissioner of Patents.

Room No. 322

Address only
The Commissioner of Patents
Washington, D. C.

49573

The case, above referred to, is adjudged to interfere with others, hereafter specified, and the question of priority will be determined in conformity with the Rules.

The statement demanded by Rule 110 must be sealed up and filed on or before Aug. 27, 1923, with the subject of the invention, and name of party filing it, indorsed on the envelope. The subject-matter involved in the interference is

Count.

1. A piston comprising a head, a skirt separated at its periphery from the head, and pin bosses connected to the head and to the upper and lower parts of the skirt, said skirt being split longitudinally at one side between its connections to said bosses.

This interference involves your application above identified and an application for PISTONS, filed by Ray E. Day, of 3825 North 24th St., Tacoma, Wash., whose attorney is Clarence E. Mehlhope of Marquette Bldg., Chicago Ill.,

An application for PISTONS, filed by Howard E. Maynard, of 700 Calvert Ave., Detroit, Mich., whose attorney is Whittemore, Hulbert & Whittemore, of Penobscot Bldg., Detroit, Mich.,

An application for PISTONS, filed by Stephen D. Hartog, of 3219 Natural Bridge Avenue, St. Louis, Mo., whose attorney is Rippey & Kingsland, of The Rialto Bldg., St. Louis, Mo.,

364997—63

450,898—2

An application for INTERNAL COMBUSTION ENGINE PISTONS, filed by Elmer C. Long, of 1037 Main St., Quincy, Illinois, whose attorney is Herbert G. Fletcher, of 321 International Life Bldg., c/o Knight Bros., St. Louis, Mo., and

An application for **PISTONS**, filed by Edward J. Gulick, of P. O. Box 553, Elkhart, Indiana, whose attorney is Milton Tibbetts, of c/o Packard Motor Car Company, Detroit, Michigan, and whose assignee is the Cleveland Trust Company, of Cleveland, Ohio, a corporation of Ohio.

The relation of the count of the interference to the claims of the respective parties is as follows:

Count	Day	Gulick	Hartog	Jardine	Long	Maynard
1	10	1	28	12	8	8.

P. P. PIERCE,

V. I. C.

Examiner, Div. 12.

364997-64

2-079

INTERFERENCE.

44H2 (8)

Interference No. 49576

Paper No. 27

Name, Frank Jardine,

Serial No. 450,898

Title, **PISTONS**

Filed, Mar. 9, 1921

Interference with E. J. Gulick; H. E. Maynard; E. C. Long; R. E. Day

DECISIONS OF

Primary Examiner,
Ex'r of Interferences, **Adverse**
Board,
Commissioner,

Dated,
Dated, **Apr. 10/24**
Dated,
Dated,

REMARKS:

.....
.....
This should be placed in each application or patent involved in interference in addition to the interference letters by Primary Examiner.

364997-65

(U. S. Patent Office Jul 7 1923 Mailed)

2-213

Forwarded from 12 Div. to
Examiner of Interferences
June 15, 1923
Ch-D

Paper No. 28
[INTERFERENCE.]
44H (8)

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE
Washington, D. C.

Copy sent assignee.

B. D. Watts,
451 Lennox Bldg.,
East 9th & Euclid Ave.,
Cleveland, Ohio.

Please find below a copy of a communication from the Examiner concerning the application of Frank Jardine, Filed Mar. 9, 1921, Serial No. 450,898, Pistons, original filed March 11, 1920, Ser. No. 364,997.

Very respectfully,

THOMAS E. ROBERTSON,
Commissioner of Patents.

Room No. 322

Address only
The Commissioner of Patents
Washington, D. C.

49576

The case, above referred to, is adjudged to interfere with others, hereafter specified, and the question of priority will be determined in conformity with the Rules.

The statement demanded by Rule 110 must be sealed up and filed on or before Aug 27 1923, with the subject of the invention, and name of party filing it, indorsed on the envelope. The subject-matter involved in the interference is

Count.

1. A piston comprising a head portion, a skirt portion, two separated pin bosses, connecting flanges in the zone of the bosses and extending from the bosses to the skirt on both sides of the bosses, connecting means from each of the bosses to the head portion, the skirt portion

being entirely separated from the head portion except through the boss connections, and the skirt portion being split longitudinally of the piston to permit free expansion and contraction and the skirt portion being cut away adjacent the outer ends of the piston bosses.

This interference involves your application above identified and an application for Pistons, filed by Ray E. Day, of 3825 North 24th St., Tacoma, Wash., and whose attorney is Clarence E. Mehlhope, of Marquette Bldg., Chicago, Illinois,

An application for Pistons, filed by Elmer C. Long, of 4834 Beaubien St., Detroit, Mich., and whose attorney is Herbert G. Fletcher of International Life Bldg., St. Louis, Mo.,

An application for Pistons, filed by Howard E. Maynard, of 700 Calvert Ave., Detroit, Michigan, and whose attorney is Whittemore, Hulbert & Whittemore, of Pe-

450,898—2

364997—66

nobscot Bldg., Detroit, Michigan, and

An application for Pistons, filed by Edward J. Gulick, of P. O. Box 553, Elkhart, Indiana, and whose attorney is Milton Tibbetts, of c/o Packard Motor Car Co., Detroit, Michigan, and whose assignee is the Cleveland Trust Company, a corporation of Ohio.

The relation of the count of the interference to the claims of the respective parties is as follows:

Count	Day	Gulick	Jardine	Long	Maynard
1	12	12	14	11	10.

P. P. PIERCE,

V.I.C.

Examiner, Div. 12.

364997—67

2—079

INTERFERENCE.

"I" (9)

Interference No. 49577

Name, Frank Jardine,

Serial No. 450,898

Title, Pistons

Filed, Mar. 9, 1921

Paper No. 29

Interference with E. J. Gulick; E. C. Long; H. E. Maynard & R. E. Day

DECISIONS OF

Primary Examiner,
Ex'r of Interferences, **Adverse**
Board,
Commissioner,

Dated,
Dated, Dec. 20, 1923
Dated,
Dated,

REMARKS:

.....
.....
This should be placed in each application or patent involved in interference in addition to the interference letters by Primary Examiner.

364997-68

(U. S. Patent Office Jul 7 1923 Mailed)

2-213

Forwarded from 12 Div. to
Examiner of Interferences.
June 15, 1923
Ch-D

Paper No. 30
[INTERFERENCE.]
411 (9)

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE
Washington, D. C.

Copy sent assignee

B. D. Watts,
451 Lennox Bldg.,
East 9th & Euclid Ave.,
Cleveland, Ohio.

Please find below a copy of a communication from the Examiner concerning the application of Frank Jardine, Filed Mar. 9, 1921, Serial No. 450,898, Pistons, original filed Mar. 11, 1920, Ser. No. 364,997.

Very respectfully,

THOMAS E. ROBERTSON

Commissioner of Patents.

Room No. 322

Address only
The Commissioner of Patents
Washington, D. C.

49577

The case, above referred to, is adjudged to interfere with others, hereafter specified, and the question of priority will be determined in conformity with the Rules.

The statement demanded by Rule 110 must be sealed up and filed on or before Aug 27 1923, with the subject of the invention, and name of party filing it, indorsed on the envelope. The subject-matter involved in the interference is

Count.

1. A piston comprising a head portion, a skirt portion, two separated pin bosses, connecting flanges in the zone of the bosses and extending from the bosses to the skirt on both sides of the bosses, connecting means from each of the bosses to the head portion, the skirt portion being entirely separated from the head portion except through the boss connections, and the skirt portion being split longitudinally of the piston to permit free expansion and contraction.

This interference involves your application above identified and an application for Pistons, filed by Ray E. Day of 3825 North 24th St., Tacoma, Wash., and whose attorney is Clarence E. Mehlhope, of Marquette Bldg., Chicago, Ill.

An application for Pistons, filed by Howard E. Maynard, of 700 Calvert Ave., Detroit, Mich., and whose attorney is Whittemore, Hulbert & Whittemore, of Penobscot Bldg., Detroit, Mich.,

An application for INTERNAL COMBUSTION ENGINE PISTONS, filed by Elmer C. Long, of 1037 Main St., Quincy, Ill., and whose attorney is Herbert G. Fletcher, of 321

364997—69

450,898—2

International Life Bldg., c/o Knight Bros., St. Louis, Mo., and

An application for Pistons, filed by Edward J. Gulick, of P. O. Box 553, Elkhart, Indiana, whose attorney is Milton Tibbetts, c/o Packard Motor Car Company, Detroit, Mich., and whose assignee is The Cleveland Trust Company, of Cleveland, Ohio, a corporation of Ohio.

The relation of the count of the interference to the claims of the respective parties is as follows:

Count	Day	Gulick	Jardine	Long	Maynard
1	11	11	13	9	9.

P. P. PIERCE,

V.I.C.

Examiner, Div. 12.

364997—70

2-079

INTERFERENCE.

"J" (10)

Interference No. 49578

Paper No. 31

Name, Frank Jardine,

Serial No. 450,898

Title, Pistons

Filed, Mar. 9, 1921

Interference with E. C. Long; S. D. Hartog; A. Spillman; R. E. Day

DECISIONS OF

~~Primary~~ Law Examiner,

Interference dissolved

Ex'r of Interferences, Adverse

Board,

Commissioner, Affirmed

Court

Dated, Apr 4 1924

Dated, Dec 30/25.

Dated, Nov. 10/24

Dated, Oct 26 1927

" Jan'y 13/30

REMARKS:

.....

.....

This should be placed in each application or patent involved in interference in addition to the interference letters by Primary Examiner.

364997-71

(U. S. Patent Office Jul 7 1923 Mailed)

2-213

Forwarded from 12 Div. to

Examiner of Interferences.

June 15, 1923.

Paper No. 32

[INTERFERENCE.]

"J" (10)

DEPARTMENT OF THE INTERIOR

UNITED STATES PATENT OFFICE

Washington, D. C.

B. D. Watts,

451 Lennox Bldg.,

East 9th & Euclid Ave.,

Cleveland, Ohio.

Please find below a copy of a communication from the Examiner concerning the application of Frank Jar-

dine, Filed Mar. 9, 1921, Serial No. 450,898, PISTONS,
original filed Mar. 11, 1920, Ser. No. 364,997.

Very respectfully,

THOMAS E. ROBERTSON,

Commissioner of Patents.

Room No. 322

Address only

The Commissioner of Patents

Washington, D. C.

49578

The case, above referred to, is adjudged to interfere with others, hereafter specified, and the question of priority will be determined in conformity with the Rules.

The statement demanded by Rule 110 must be sealed up and filed on or before Aug. 27, 1923, with the subject of the invention, and name of party filing it, indorsed on the envelope. The subject-matter involved in the interference is

Count.

1. In a piston of the class described, a cup-like head comprising a pressure receiving end and a wall portion, a skirt circumferentially disconnected from the wall portion of the head and divided from end to end and skirt carriers connecting said skirt to the pressure receiving end, said skirt carriers being disconnected from the wall portion of the head and susceptible of being slightly flexed radially.

This interference involves your application above identified and an application for PISTONS, filed by Ray E. Day, of 3825 North 24th St., Tacoma, Wash., and whose attorney is Clarence E. Mehlhope, of Marquette Bldg., Chicago, Ill.,

An application for ENGINE PISTONS, filed by Albert Spillman, of 261 Payne Ave., North Tonawanda, N. Y., whose attorney is Geyer & Popp, of 619 Brisbane Bldg., Buffalo, N. Y.,

An application for PISTONS, filed by Stephen D. Hartog, of 3219 Natural Bridge Ave., St. Louis, Mo., and whose attorney is Rippey & Kingsland, of The Rialto Bldg., St. Louis, Mo., and

364997-72

450,898-2

An application for INTERNAL COMBUSTION ENGINE PISTONS, filed by Elmer C. Long, of 1037 Main St., Quincy, Illinois, and whose attorney is Herbert G. Fletcher, of 321 International Life Bldg., c/o Knight Bros., St. Louis, Mo.

The relation of the count of the interference to the claims of the respective parties is as follows:

Count	Day	Spillman	Hartog	Jardine	Long
1	17	15	10	19	12.

P. P. PIERCE,

Examiner, Div. 12.

V.I.C.

364997-73

2-079

INTERFERENCE.

Interference No. 49579

Name, Frank Jardine

Serial No. 450,898

Title, PISTONS

Filed, Mar. 9, 1921

Interference with E. C. Long; S. D. Hartog; A. Spillman.

"K" (11)
Paper No. 33

DECISIONS OF

Primary Examiner,
Ex'r of Interferences, Adverse.
Board,
Commissioner,

Dated,
Dated, Sept. 3/24
Dated,
Dated,

REMARKS:

.....
.....
This should be placed in each application or patent involved in interference in addition to the interference letters by Primary Examiner.

364997-74

(U. S. Patent Office Jul 7 1923 Mailed)

2-213

Forwarded from 12 Div. to
Examiner of Interferences.
June 15, 1923
Ch-D

Paper No. 34
[INTERFERENCE.]
"K"

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE
Washington, D. C.

Copy sent assignee.

B. D. Watts,
451 Lennox Bldg.,
East 9th & Euclid Ave.,
Cleveland, Ohio.

Please find below a copy of a communication from
the Examiner concerning the application of Frank Jar-
dine, Filed Mar. 9, 1921, Serial No. 450,898; PISTONS,
renewal of appln. filed March 11/20, No. 364,997.

Very respectfully,

THOMAS E. ROBERTSON,
Commissioner of Patents.

Room No. 322

Address only
The Commissioner of Patents
Washington, D. C.

49579

The case, above referred to, is adjudged to interfere
with others, hereafter specified, and the question of pri-
ority will be determined in conformity with the Rules.

The statement demanded by Rule 110 must be sealed
up and filed on or before Aug. 27, 1923, with the subject
of the invention, and name of party filing it, indorsed
on the envelope. The subject-matter involved in the in-
terference is

Count.

1. A piston for internal combustion engines com-
prising a head having downwardly extending resilient
arms carrying curved guide members, said head being
of less diameter than the diameter of the guide members.

This interference involves your application, above identified and an application for **ENGINE PISTONS**, filed by Albert Spillman, of 261 Payne Ave., North Tonawanda, New York, and whose attorney is Geyer & Popp, of 619 Brisbane Bldg., Buffalo, N. Y.,

An application for **PISTONS**, filed by Stephen D. Hartog, of 3219 Natural Bridge Ave., St. Louis, Mo., and whose attorney is Rippey & Kingsland, of The Rialto Bldg., St. Louis, Mo.; and

An application for **INTERNAL COMBUSTION ENGINE PISTONS**, filed by Elmer C. Long, of 1037 Main St., Quincy, Ill., and whose attorney is Herbert G. Fletcher, of 321 International Life Bldg., c/o Knight Bros., St. Louis, Mo.

364997-75

450898-2

The relation of the count of the interference to the claims of the respective parties is as follows:

Count	Hartog	Jardine	Long	Spillman
1	8	18	11	14.

P. P. PIERCE,

Examiner, Div. 12.

V.I.C.

364997-76

 2-079

"M" (13)

INTERFERENCE.

Interference No. 49581

Paper No. 35

Name, Frank Jardine,

Serial No. 450,898

Title, Pistons

Filed, Mar. 9, 1921

Interference with Stephen D. Hartog; Elmer C. Long.

DECISIONS OF

Primary Examiner,

Ex'r of Interferences, **Adverse**

Board,

Commissioner,

Dated,

Dated, **Apr 8/24**

Dated,

Dated,

REMARKS:

.....
.....
This should be placed in each application or patent involved in interference in addition to the interference letters by Primary Examiner.

364997-77

(U. S. Patent Office Jul 7 1923 Mailed)

2-213

Forwarded from 12 Div. to
Examiner of Interferences.
June 15, 1923

Paper No. 36
[Interference.]
"M"

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE
Washington, D. C.

Copy sent assignee

B. D. Watts,
451 Lennox Bldg.,
East 9th & Euclid Ave.,
Cleveland, Ohio.

Please find below a copy of a communication from the Examiner concerning the application of Frank Jardine, Filed March 9, 1921, Serial No. 450,898, Pistons.

Very respectfully,

THOMAS E. ROBERTSON,
Commissioner of Patents.

Room No. 322

Address only
The Commissioner of Patents
Washington, D. C.

49581

The case, above referred to, is adjudged to interfere with others, hereafter specified, and the question of priority will be determined in conformity with the Rules.

The statement demanded by Rule 110 must be sealed up and filed on or before Aug 27, 1923, with the subject of the invention, and name of party filing it, indorsed

on the envelope. The subject-matter involved in the interference is

Count.

1. A piston having a head and a cross-head structure connected thereto and comprising diametrically opposite slippers, wrist pin bosses between the slippers and means joining said bosses and slippers together, the said joining means being resiliently yieldable.

This interference involves your application above identified and an application for Pistons, filed by Stephen D. Hartog, of 3219 Natural Bridge Ave., St. Louis, Mo., and whose attorney is Rippey & Kingsland, of The Rialto Bldg., St. Louis, Mo., and

An application for Pistons for Internal Combustion Motors, filed by Elmer C. Long, of 1037 Main St., Quincy, Illinois, whose attorney is Herbert G. Fletcher, of c/o Knight Bros., 321 International Life Bldg., St. Louis, Mo.,

The relation of the count of the interference to the claims of the respective parties is as follows:

Count	Hartog	Jardine	Long
1	7	21	8.

P. P. PIERCE,

V.I.C.

Examiner, Div. 12

364997-78

2-079

INTERFERENCE.

11-11 (14)

Paper No. 37

Interference No. 49582

Name, Frank Jardine

Serial No. 450,898

Title, Pistons

Filed, Mar. 9, 1921

Interference with H. E. Maynard: R. E. Day

DECISIONS OF

Primary Examiner,
Ex'r of Interferences, **Favorable**
Board,
Commissioner,

Dated,
Dated, **Nov 19/23**
Dated,
Dated,

REMARKS:

.....
.....
This should be placed in each application or patent involved in interference in addition to the interference letters by Primary Examiner.

364997-79

(U. S. Patent Office Jul 7 1923 Mailed)
2-213

Forwarded from 12 Div. to
Examiner of Interferences.
June 15, 1923

Paper No. 38
[Interference.]
"N" (14)

Ch-D

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE
Washington, D. C.

Copy sent assignee.

B. D. Watts,
451 Lennox Bldg.,
East 9th & Euclid Ave.,
Cleveland, Ohio.

Please find below a copy of a communication from the Examiner concerning the application of Frank Jardine, filed Mar. 9, 1921, Serial No. 450,896, Pistons, original filed Mar. 11, 1920, Ser. No. 364,997.

Very respectfully,

THOMAS E. ROBERTSON,
Commissioner of Patents.

Room No. 322

Address only
The Commissioner of Patents
Washington, D. C.

49582

The case, above referred to, is adjudged to interfere with others, hereafter specified, and the question of priority will be determined in conformity with the Rules.

The statement demanded by Rule 110 must be sealed up and filed on or before Aug. 27, 1923, with the subject of the invention, and name of party filing it, indorsed on the envelope. The subject-matter involved in the interference is

Count.

1. In a piston for an internal combustion engine, the combination of a head having ring grooves therein, a plurality of webs integral with said head and having diametrically opposite piston pin bosses therein, a skirt integral with said webs relieved adjacent said webs and separated from the head by circumferential slots and provided with a longitudinal slot connecting the lower end of the piston with one of the circumferential slots.

This interference involves your application above identified and an application for Pistons, filed by Ray E. Day, of 3825 North 24th St., Tacoma, Wash., and whose attorney is Clarence E. Mehlihope, of Marquette Bldg., Chicago, Ill., and

An application for Pistons, filed by Howard E. Maynard, of 700 Calvert Ave., Detroit, Mich., and whose attorney is Whittemore, Hulbert & Whittemore, of Penobscot Bldg., Detroit, Mich.

The relation of the count of the interference to the claims of the respective parties is as follows:

Count	Day	Jardine	Maynard
1	19	3	17

P. P. PIERCE,

V. I. C.

Examiner, Div. 12.

364997-80

2-079

INTERFERENCE

Interference No. 49583

Name, Frank Jardine

Serial No. 450,898

Title, Pistons

Filed, Mar. 9, 1921

Interference with S. D. Hartog; Albert Spillman

"Q" (15)
Paper No. 39

DECISIONS OF

Primary Examiner,
Ex'r of Interferences,
Board,
Commissioner,

Dated,
Dated,
Dated;
Dated,

REMARKS:

.....
.....
This should be placed in each application or patent involved in interference in addition to the interference letters by Primary Examiner.

364997-81

(U. S. Patent Office Jul 7 1923 Mailed)

2-213

Forwarded from 12 Div. to
Examiner of Interferences.

June 15, 1923

Ch-D

Paper No. 40
[Interference.]

"Q" (15)

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Washington, D. C.

Copy sent assignee.

B. D. Watts,

451 Lennox Bldg.,

East 9th & Euclid Ave.,

Cleveland, Ohio

Please find below a copy of a communication from the Examiner concerning the application of Frank Jardine, Filed Mar. 9, 1921, Serial No. 450,898—Pistons, original filed Mar. 11, 1920, Ser. No. 364,997.

Very respectfully,

THOMAS E. ROBERTSON,

Commissioner of Patents.

Room No. 322

Address only

The Commissioner of Patents

Washington, D. C.

49583

The case, above referred to, is adjudged to interfere with others, hereafter specified, and the question of priority will be determined in conformity with the Rules.

The statement demanded by Rule 110 must be sealed up and filed on or before Aug. 27, 1923, with the subject of the invention, and name of party filing it, indorsed

on the envelope. The subject-matter involved in the interference is

Count.

1. A piston comprising a head, a skirt having resilient sections separated from said head by a slit extending continuously around the piston, and means for yieldingly connecting said skirt sections with said head.

This interference involves your application above identified and an application for Engine Pistons, filed by Albert Spillman, of 261 Payne Ave., North Tonawanda, N. Y., and whose attorney is Geyer & Popp, of 619 Brisbane Bldg., Buffalo, N. Y., and

An application for Pistons, filed by Stephen D. Hartog, of 3219 Natural Bridge Ave., St. Louis, Mo., and whose attorney is Rippey & Kingsland, of The Rialto Bldg., St. Louis, Mo.

The relation of the count of the interference to the claims of the respective parties is as follows:

Count	Hartog	Jardine	Spillman
1	34	22	1.

P. P. PIERCE,

Examiner, Div. 12.

364997-82

V. I. C.

2-079

INTERFERENCE.

"U" (21)

Interference No. 49589

Name, Frank Jardine

Serial No. 459,898

Title, Pistons

Filed, Mar. 9, 1921

Interference with Howard E. Maynard

Paper No. 41

DECISIONS OF

Primary Examiner,
Ex'r of Interferences, **Favorable**
Board,
Commissioner,

Dated,
Dated, **Nov 19/23**
Dated,
Dated,

REMARKS:

.....
.....
This should be placed in each application or patent involved in interference in addition to the interference letters by Primary Examiner.

364997—83

(U. S. Patent Office Jul 7 1923 Mailed)

2—213

Forwarded from 12 Div. to
Examiner of Interferences:
June 15, 1923
Ch-D

Paper No. 42
[INTERFERENCE.]
"U"

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE
Washington, D. C.

B. D. Watts,
451 Lennox Bldg., East 9th & Euclid Ave.,
Cleveland, Ohio.

Please find below a copy of a communication from the Examiner concerning the application of Frank Jardine, Filed Mar. 9, 1921, Serial No. 450,898, PISTONS, renewal of appln. filed March 11, 1920, No. 364,997.

Very respectfully,

THOMAS E. ROBERTSON,
Commissioner of Patents.

Room No. 322

Address only
The Commissioner of Patents
Washington, D. C.

49589

The case, above referred to, is adjudged to interfere with others, hereafter specified, and the question of priority will be determined in conformity with the Rules.

The statement demanded by Rule 110 must be sealed up and filed on or before Aug. 27, 1923, with the subject of the invention, and name of party filing it, indorsed on the envelope. The subject-matter involved in the interference is

Count.

1. In a piston for an internal combustion engine the combination of a head comprising a head disc and a peripheral flange having ring grooves therein, a pair of cordal webs, substantially rectangular in shape and located opposite each other in the piston, connected integrally at their upper edges to the peripheral flange of the piston, diametrically opposite wrist pin bosses, one in each of said webs, a skirt for said piston integrally connected to each of the side edges of the webs and cut away so as to expose each of the rectangular webs and the piston pin bosses from the outside of the piston, said piston being provided with circumferential slots between the skirt and head and with a longitudinal slot extending from one of the circumferential slots to the open end of the piston.

This interference involves your application above identified and an application for **PISTONS**, filed by Howard E. Maynard, of 700 Calvert Ave., Detroit, Michigan, and whose attorney is Whittemore, Hulbert & Whittemore, of Penobscot Bldg., Detroit, Michigan.

The relation of the count of the interference to the claims of the respective parties is as follows:

Count	Jardine	Maynard
1	6	18.

P. P. PIERCE,

Examiner, Div. 12.

V.I.C.

364997-84

2-079

INTERFERENCE.

Interference No. 49590

Name, Frank Jardine,

Serial No. 450,898

Title, **PISTONS**

Filed, Mar. 9, 1921

Interference with Elmer C. Long

"V" 22
Paper No. 43

DECISIONS OF

Primary Examiner,
Ex'r of Interferences, **Adverse**
Board,
Commissioner,

Dated,
Dated, **Apr. 8/24**
Dated,
Dated,

REMARKS:

.....
.....

This should be placed in each application or patent involved in interference in addition to the interference letters by Primary Examiner.

364997—85

(U. S. Patent Office Jul 7 1923 Mailed)

2—213

Forwarded from 12 Div. to
Examiner of Interferences.
June 15, 1923
Ch-D

Paper No. 44
[INTERFERENCE.]
"V"

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE
Washington, D. C.

B. D. Watts,
451 Lennox Bldg.,
East 9th & Euclid Ave.,
Cleveland, Ohio.

Please find below a copy of a communication from the Examiner concerning the application of Frank Jardine, Filed Mar. 9, 1921, Serial No. 450,898, PISTONS, renewal of appln. filed March 11/20 No. 364,997.

Very respectfully,

THOMAS E. ROBERTSON,

Commissioner of Patents.

Room No. 322

Address only

The Commissioner of Patents
Washington, D. C.

49590

The case, above referred to, is adjudged to interfere with others, hereafter specified, and the question of priority will be determined in conformity with the Rules.

The statement demanded by Rule 110 must be sealed up and filed on or before Aug. 27, 1923, with the subject of the invention, and name of party filing it, indorsed on the envelope. The subject-matter involved in the interference is

Counts.

1. In a piston for an internal combustion engine, the combination of a piston head having a depending ring flange, two pairs of curved guide members oppositely disposed with relation to the axis of the piston, the curved members of each pair thereof being separated from the ring flange and from each other by continuous air gaps, and webs carrying wrist pin bosses; the said curved members, piston head and webs being united in an integral unitary structure.

2. In a piston for an internal combustion engine, the combination of a piston head having a depending ring flange, two pairs of curved guide members oppositely disposed with relation to the axis of the piston, the curved members of each pair thereof being separated from the ring flange and from each other by continuous air gaps, wrist pin bosses and webs connecting the wrist pin bosses with certain of said guide members, said guide members piston head and webs being united in an integral unitary structure.

This interference involves your application above identified and an application for PISTONS FOR INTERNAL COMBUSTION MOTORS, filed by Elmer C. Long, of 1037 Main St., Quincy, Illinois, and whose attorney is Herbert G. Fletcher, of c/o Knight Bros., 321 International Life Bldg., St. Louis, Missouri.

364997-86

450,898-2

The relation of the counts of the interference to the claims of the respective parties is as follows:

Counts	Jardine	Long
1	1	9
2	11	10

P. P. PIERCE,

Examiner, Div. 12.

V.L.O.

364997-87

(U. S. Patent Office Dec 3 1923 Mailed)

2-260

Div. 12 Room 322

Paper No. 45

Address only

"The Commissioner of Patents,
Washington, D. C.,"
and not any official by name.

Ch-D

All communications respecting this
application should give the serial number
date of filing, title of invention, and
name of the applicant.

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE
Washington

Richey, Slough and Watts,
1213 Ulmer Building,
Cleveland, Ohio.

Please find below a communication from the Examiner in charge of the application of Frank Jardine, Filed Mar. 9, 1921, Serial No. 450,898, PISTONS. Originally filed Mar. 11, 1920, Serial No. 364,997.

THOMAS E. ROBERTSON,
Commissioner of Patents.

49571

In accordance with the provisions of Rule 129, the application for patent filed by Gustave R. Kelm, whose post-office address is c/o Walker M. Levett Company, 417 East 23rd St., New York, New York, whose attorney is Clarence D. Kerr, of No. 5 Nassau Street, New York, New York, and whose assignee is the Walker M. Levett Company, of New York, New York, a corporation of New York, is hereby added to Interference No. 49571, between Day v. Taylor v. Spillman v. Maynard v. Jardine v. Long v. Gulick, to which you are a party. The claim of Kelm's application corresponding to the count of the issue is

Count

1

Claim

7.

The new party only is given until the Dec. 31, 1923, day of, 19..., within which to file the preliminary statement required by Rule 110.

The issue of the interference remains unchanged.

P. P. PIERCE,

Examiner, Div. 12.

V.I.C.

364997-88

(U. S. Patent Office Dec 3 1923 Mailed)

2-260

Div. 12 Room 322

Paper No. 45 46

Address only

"The Commissioner of Patents,
Washington, D. C.,"
and not any official by name.

Ch-D

All communications respecting this application should give the serial number, date of filing, title of invention, and name of the applicant.

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Washington

Richey, Slough and Watts,
1213 Ulmer Building,
Cleveland, Ohio.

Please find below a communication from the EXAMINER in charge of the application of Frank Jardine, Filed Mar. 9, 1921, Serial No. 450,898, Pistons originally filed Mar 11, 1920, Serial No. 364,997.

THOMAS E. ROBERTSON,

Commissioner of Patents.

49572

In accordance with the provisions of Rule 129, the application for patent filed by Gustav R. Kelm, whose post-office address is c/o Walker M. Levett Company, No. 417 East 23rd Street, New York, New York, whose attorney is Clarence D. Kerr, of No. 5 Nassau Street, New

York, N. Y., and whose assignee is the Walker M. Levett Company, of New York, New York, a corporation of New York is hereby added to Interference No. 49572, between Taylor v. Spillman v. Maynard v. Jardine v. Hartog v. Long v. Gulick, to which you are a party. The claim of Kelm's application corresponding to the count of the issue is:

Count	Claim
1	8.

The new party only is given until the Dec 31 1923, day of, 19...., within which to file the preliminary statement required by Rule 110.

The issue of the interference remains unchanged.

P. P. PIERCE,

V.I.C.

Examiner, Div. 12.

364997-89

(U. S. Patent Office Dec 3 1923 Mailed)

2-260

Div. 12 Room 322

Paper No. 47

Address only

"The Commissioner of Patents,
Washington, D. C.,"

and not any official by name.

Ch-D

All communications respecting this application should give the serial number date of filing, title of invention, and name of the applicant.

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE
Washington

(Copy sent Assignee)

Richey, Slough and Watts,
1213 Ulmer Building,
Cleveland, Ohio.

Please find below a communication from the EXAMINER in charge of the application of Frank Jardine, Filed March 9, 1921, Serial No. 450,898, originally filed March 11, 1920, Serial No. 364,997, Pistons.

THOMAS E. ROBERTSON,

Commissioner of Patents.

49581

In accordance with the provisions of Rule 129, the application for patent filed by Gustav R. Kelm, whose post-office address is c/o Walker M. Levett Company, 417 East 23rd Street, New York, New York, whose attorney is Clarence D. Kerr, No. 5 Nassau Street, New York, New York, and whose assignee is the Walker M. Levett Company, of New York, New York, a corporation of New York, is hereby added to Interference No. 49581 between Jardine v. Hartog v. Long to which you are a party. The claims of Kelm's application corresponding to the count of the issue is:

Count	Claim
1	9.

The new party only is given until the Dec 31 1923 day of, 19..., within which to file the preliminary statement required by Rule 110.

The issue of the interference remains unchanged.

P. P. PIERCE,

V.L.C.

Examiner, Div. 12.

364997—90

(Mail Room Nov 5 1923 U. S. Patent Office)

(Docket Division Nov. 5 1923)

450,898—48

Doc

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE
Washington, D. C.

Applicant — Frank Jardine
Invention — Pistons
Serial No. — 364,997, Renewal No. 450,898
Filed — March 9, 1921
Div 12 — Room 322

Cleveland, O., Nov. 3, 1923.

Hon. Commissioner of Patents,
Washington, D. C.

Sir:—

I hereby substitute in my place as attorneys in the above entitled case, the firm of Richey, Slough & Watts, Register No. 11,730, (a partnership composed of F. O. Richey, F. M. Slough, B. D. Watts and W. M. Hart), 1213 Ulmer Building, Cleveland, Ohio, with all the powers originally delegated to myself.

And I hereby request that this substitution apply to each of the interferences in which the said application is now involved, identified by number as follows:—

No. 49,569

49,570

49,571

49,572

49,573

49,576

No. 49,577

49,578

49,579

49,581

49,582

49,583

49,589

49,590

B. D. WATTS,

Attorney of Record.

The foregoing substitution is hereby approved.

ALUMINUM MANUFACTURES, INC.

By W. P. KING,

President.

Assignee of Record

(U. S. I. R. Documentary Stamp 25 Cents.)

364997—91

(Mail Room Nov 12 1925 U. S. Patent Office)

(Docket Division Nov 17 1925 U. S. Patent Office)

Intf. No. 49578 T. B.

Briefs for Jardine Nov. 16/25

450,898—49

49572 49569 T. B. 49589 dist.

IN THE UNITED STATES PATENT OFFICE

Applicant Frank Jardine
Application Pistons
Filed March 9, 1921
Serial No. 450,898
Docket No. 1977

Cleveland, Ohio,
November 10, 1925.

The Commissioner of Patents,
Washington, D. C.

Sir:

I hereby appoint the firm of Richey & Watts, 1983
Union Trust Bldg., Cleveland, Ohio, (composed of F. O.

Richey and B. D. Watts), Register No. 11,730 as substitute attorneys with all of the powers originally given to me, in the above entitled application.

B. D. WATTS,

G.

Attorney of Record.

(U. S. I. R. Documentary Stamp 25 Cents.)

364997—92

(Mail Division Aug 13 1928 U. S. Patent Office)

9

49583

U. S. Patent Office

18

49578

Aug 14 1928

24

Division 12 Paper No. 50

Not ent.

IN THE UNITED STATES PATENT OFFICE

Applicant — Frank Jardine

Application — Pistons

Serial No. — 450,898

Filed — March 9, 1921

Cleveland, Ohio,
August 7, 1928.

The Commissioner of Patents,
Washington, D. C.

Sir:

Applicant hereby amends as follows:

Add the following claim—

A one piece piston comprising a head and a skirt, the skirt having boss carrying portions exteriorly relieved and arranged opposite each other and secured to the head by substantially rigid connectors to cause radially outward and inward movement of the portions (under operation conditions of the piston, the skirt also having opposite bearing wall portions arranged between the said boss carrying portions and each separated from the head by a slot of greater circumferential length than the corresponding length of the said portions.

Respectfully submitted,

FRANK JARDINE,

By RICHEY & WATTS,

His Attorneys.

REMARKS

Applicant makes the above claim which is Count 4 of Interference No. 56,380, Franquist vs. Covert.

—1—

364997—93

The claim is Covert's claim 15 and Franquist's claim 31. Applicant has recently learned that an interference regarding this subject matter existed and has made the claim promptly upon learning of the same.

The claim reads upon the Jardine construction as follows: The head of the piston is shown at 1 and the skirt at 2. The boss-carrying portions are shown at 6 which are relieved about the bosses. The boss-carrying portions are arranged opposite to each other and secured to the head by substantially rigid connectors to which the reference numerals 9 are attached and which cause the outward and inward movement of the skirt portions. The opposite bearing walls of the skirt portions are shown at 10, each of which is separated from the head by slots 11 which extend as is best shown in the upper left-hand corner of Fig. 1 beyond the bearing faces.

Respectfully submitted,

RICHEY & WATTS,

Applicant's Attorneys.

364997—94

(Mailed Feb-8-1930)

Div. 12 Room 380 260 CAK:JTE Paper No. 51

Address only

"The Commissioner of Patents,
Washington, D. C.,"

and not any official by name.

All communications respecting this application should give the serial number, date of filing, and name of the applicant

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE

Washington Feb. 8, 1930.

Please find below a communication from the Examiner in charge of this application.

THOMAS E. ROBERTSON,
Commissioner of Patents.

Applicant: Frank Jardine,
Ser. No. 450,898 (Renewal)
Filed Mar. 9, 1921
For Pistons.

Richey & Watts,
1983 Union Trust Bldg.,
Cleveland, Ohio.

Interferences 49,569; 49,570; 49,571; 49,572; 49,573;
49,576; 49,577; 49,578; 49,579; 49,581; 49,583; and 49,590
having been decided adverse to the applicant, claims 1,
and 11 to 22, inclusive, are *finally* rejected in accordance
with the provisions of Rule 132.

CAK

P. P. PIERCE,
Examiner.

364997-95

I 900

(Chief Clerk May 8 30 U. S. Patent Office)

U. S. Patent Office
May 8 1930

Division 12, Paper No. 52

Applicant — Frank Jardine	} Division 12
Application — Pistons	
Serial No. — 364,997 450,898	
Filed — March 9, 1921	
Docket No. — 1977	

Cleveland, Ohio, May 7, 1930.

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

G In response to Official Action dated February 8,
1930 applicant amends as follows:

Claim 4, line 7, cancel "connecting" and substitute
—*lying on a line extending from*—. Same line cancel
"with" and substitute —*to*—.

Claim 5, line 5, after "webs" insert —*to expose said
bosses*. Line 7 after "slot" insert —*lying on a line ex-
tending from*—.

Cancel Claims 1, and 11 to 22 inclusive.

Add the following claims:

23. 3. An internal combustion engine piston comprising a head having a depending ring flange, webs integrally cast to the ring flange and depressed within the circumference defined by the ring flange, wrist pin bosses cast in the webs, and curved guide means integrally cast to the webs and provided with a longitudinal slit disposed between the ends of the webs on one side of the piston, the outer surface of the guide means being disposed in a circumference outwardly of the outer surface of the webs and merging into the latter at included angles sufficiently great to permit the removal of a permanent mold part used to form the outer surface of the piston.

(over)

364997—96

I 901

24. 4 In a piston for an internal-combustion engine, the combination of a head having a depending circumferential flange provided with ring grooves on the exterior thereof, chordal webs integral with the head and depending therefrom in opposite positions, piston pin bosses, one located in each web opposite each other, a skirt portion cut away from the head to expose the bosses in the webs and provided with curved bearing faces integral with the webs and connected to the ends of the webs opposite each other, each of said bearing faces being separated from the head except for the integral connection through the webs and one of said bearing faces having a substantially vertical slot therein.

25. 5 In a piston for an internal combustion engine, the combination of a head having a depending circumferential flange provided with ring grooves on the exterior thereof, chordal webs integral with the head and depending therefrom in opposite positions, piston pin bosses one located in each web opposite each other, ribs integral with and substantially perpendicular to the webs joining the webs and the head, a skirt portion cut away from the head to expose the bosses in the webs provided with curved bearing faces integral with the webs and connected to the ends of the webs opposite each other, each of said bearing faces being separated from the head except for the integral connection through the webs and one of said bearing faces having a substantially vertical slot therein.

26. 6. In a piston for an internal combustion engine, the combination of a head having a depending circumferential flange provided with ring grooves on the exterior thereof, chordal webs integral with the head and depending therefrom in opposite positions, piston pin bosses, one located in each web opposite each other, ribs integral with and substantially perpendicular to the webs joining the webs, the bosses and the head together, a skirt portion cut away from the head to expose the bosses in the webs and provided with curved bearing faces integral with the webs and connected to the ends of the webs opposite each other, each of said bearing

364997-97

I 902

faces being separated from the head except for the integral connection through the webs and one of said bearing faces having a substantially vertical slot therein.

27. 7 A piston for an internal combustion engine comprising a head portion having a depending ring flange, a skirt portion, said skirt portion comprising a pair of substantially parallel webs carried by the head portion and provided with opposed wrist pin bosses, bearing portions carried by the ends of said webs and separated from the head by air gaps, the laterally outer faces of said web portions being free from laterally overhanging edge portions of the bearing faces, one of said bearing faces being provided with a longitudinal slot disposed intermediate the end portions of said bearing face.

28. 8 In a piston for an internal combustion engine, the combination of a head having a cylindrical ring flange, oppositely disposed webs integral with the flange and carrying diametrically opposite piston pin bosses, a skirt integral with said webs and cut away to expose the sides of said webs and separated from the ring flange by circumferential slits and provided with a longitudinal slit disposed between the ends of the webs.

29. 9 In a piston for an internal combustion engine, the combination of a head comprising a disc and a peripheral flange having ring grooves therein, a pair of chordal webs connected to the flange of the head by outwardly flaring extensions, oppositely disposed wrist pin bosses in the webs, and a cylindrical skirt cut away to expose the webs and integrally connected to the ends of the latter, the skirt being separated from the head

between the said webs by circumferential slits and the skirt having a longitudinally extending slit disposed between the ends of the webs on one side of the piston.

364997-98

I 903

30. 10 In a piston for an internal combustion engine, the combination of a piston head including a depending ring flange, oppositely disposed webs depending from the ring flange and disposed inwardly thereof, wrist pin bosses in the webs, and curved bearing means integrally connected to the webs and separated from the head by air gaps extending circumferentially of the piston between the ends of the webs, the said bearing means having a slit located between the ends of the webs and extending in a direction lengthwise of the piston.

31. 11 In a piston of an internal combustion engine, the combination of a piston head having a cylindrical ring flange depending therefrom, webs integral with the flange extending convergently inwardly of the piston from the opposite portions of the flange and then lengthwise of the piston in substantially parallel arrangement, wrist pin bosses in the webs, and a skirt joined to the ends of the webs on opposite sides of the bosses and cut away to expose substantially all of the sides of the webs, all the foregoing parts being integrally connected together, there being circumferentially extending air gaps separating the head and skirt between the webs and a slot in one side of the skirt between the ends of the webs and extending in a direction lengthwise of the piston.

32. 12 In a piston for an internal combustion engine, the combination of a piston head comprising a disc with a depending peripheral ring flange, a skirt separated from the head by circumferentially extending air gaps, cordal webs integrally connected at their end to the skirt with their outer surfaces near the points of connection with the skirt diverging outwardly to merge into the outer surfaces of the skirt, wrist pin bosses integrally formed with the webs, and integral connections between the depending flange of the head and the adjacent ends of the webs, said connections extending from the flange inwardly and lengthwise of the piston and merging into the webs with outwardly diverging sur-

faces, the skirt having a longitudinally extending slit formed on one side thereof between the ends of the webs.

(Sig.)

364997-99

I 904

Respectfully submitted,

FRANK JARDINE,

By RICHEY & WATTS,

His Attorneys.

REMARKS

The claims constituting the issues of the interferences which were decided adversely to applicant have been canceled and new claims drawn specifically to the patentable subject matter of Applicant's device substituted.

Claims 3 and 6 constituted the issue of interferences No. 49582 and 49589, in which priority was awarded to applicant.

Claims 4, 5, 6, 8, 9, and 10 were, before the declaration of the interferences, rejected as not being patentably distinct from claim 3. Accordingly the subject matter of these claims is believed to be allowable along with claim 3.

Claims 4 and 5 have been amended slightly to further distinguish from claim 3, and it is believed that all of these claims may now be allowed.

New claim 23 includes webs cast integrally with the ring flange and also recites the relation of the thrust members and webs which join at included angles sufficiently great to permit removal of a permanent mold part used in casting the piston. These limitations distinguish from the prior art and from the applications involved in the interferences. Claim 24 is believed to be patentable by reason of the recitation of a skirt portion cut away from the head to expose the bosses in combination with the other elements of applicant's structure. Claim 25 includes in addition the vertical ribs 9 above the piston pin bosses joining the webs to the head. Claim 26 defines these ribs more specifically.

364997-100

I 905

Claim 27 is believed to be patentable by reason of the definition of the webs as having lateral outer faces

free from laterally overhanging edge portions of the bearing faces.

Claim 28 is similar to claim 3 but recites in addition that the webs are integral with the ring flange. Claim 29 distinguishes from Claim 6 in the same manner. Each of these claims also defines the longitudinal slit in slightly broader terms than claims 3 and 6.

Claim 30 is drawn along the lines of Claim 11 but distinguishes from the disclosure of the parties involved in the interferences by reciting the webs as depending from the ring flange.

Claims 31 and 32 are drawn more specifically to the structure of applicant's piston which permits its manufacture in permanent molds. Claim 31 states that the webs are integral with the flange and extend convergently inwardly therefrom and have substantially all of their outer sides exposed. Claim 32 defines the outwardly diverging connections between the webs and the skirt sections and the outwardly diverging connections between the webs and the ring flange.

All of the claims now in the case are believed to be patentably distinct from the prior art and the disclosures of the winning parties in the interferences and are believed to be sufficiently distinguished from each other to warrant their allowance.

Respectfully submitted,

By RICHEY & WATTS,

Applicant's Attorneys.

11CS

364997-101

(Chief Clerk May 8 30 U. S. Patent Office)

U. S. Patent Office

May 8 1930

Division 12, Paper No. 53

Applicant	Frank Jardine
Application	Pistons
	450,898
Serial No.	364,997
Filed	March 9, 1921
Docket No.	1977

Division
12

Washington, D. C.,
May 8, 1930.

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

H

Kindly amend the above-entitled application as follows:

Cancel claims 2, 4, 5, 7, 8, 9 and 10.

Cancel the claim submitted in the amendment dated August 7, 1928.

Respectfully submitted,

FRANK JARDINE,

By RICHEY & WATTS,

His Attorneys.

REMARKS

At the interview courteously granted this day by the Examiner to applicant's attorney, claims 2, 4, 5, 7, 8, 9 and 10 were discussed in connection with the Office action of Oct. 5, 1922, and in connection with claims 23-32 inclusive, added by the preceding amendment.

The Examiner held claim 2 to be unpatentable over the issue of Interference No. 49590, involving applicant's claim 1. Accordingly, this claim has been cancelled.

Claims 4, 5, 7, 8, 9, and 10 have been cancelled as not being patentably distinct from Claim 3, and also because it is believed the patentable subject-matter thereof is more clearly defined in new claims 23-32, inclusive.

The claim submitted by the amendment dated Aug.

364997-102

-2-

7, 1928, which was not entered, has been cancelled in order to clarify the record.

Respectfully submitted,

By RICHEY & WATTS,

Applicant's Attorneys.

364997-103

(Mailed May 9 1930)

181

Div. 12
CAK-JTE

Serial No. 450,898
(Renewal)

Address only
The Commissioner of Patents
Washington, D. C.

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE

Washington May 9, 1930.

Frank Jardine (Assor etc.)

YOUR APPLICATION for a patent for an IMPROVEMENT in PISTONS filed Mar. 9, 1921 has been examined and ALLOWED with 12 claims.

The final fee, TWENTY DOLLARS, WITH \$1 ADDITIONAL FOR EACH CLAIM ALLOWED IN EXCESS OF 20, must be paid not later than SIX MONTHS from the date of this present notice of allowance. If the final fee be not paid within that period, the patent will be withheld, but the application may be renewed within one year after the date of the original notice with a renewal fee of \$20 and \$1 additional for each claim in excess of 20.

The office delivers patents upon the day of their date, on which date their term begins to run. The preparation of the patent for final signing and sealing will require about four weeks, and such work will not be begun until after payment of the necessary final fee.

When the final fee is paid, there should also be sent, DISTINCTLY AND PLAINLY WRITTEN, the name of the INVENTOR, TITLE OF THE INVENTION, AND SERIAL NUMBER AS ABOVE GIVEN, DATE OF ALLOWANCE (which is the date of this circular), DATE OF FILING, and, if assigned, the NAMES OF THE ASSIGNEES.

If it is desired to have the patent issue to an ASSIGNEE OR ASSIGNEES, an assignment containing a REQUEST to that effect, together with the FEE for recording the same, must be filed in this office on or before the date of payment of the final fee.

After issue of the patent, uncertified copies of the drawings and specifications may be purchased at the price of TEN CENTS EACH. The money should accompany the order. Postage stamps will not be received.

The final fee will NOT be received from other than the applicant, his assignee or attorney, or a party in interest as shown by the records of the Patent Office.

NOTICE.—WHEN THE NUMBER OF CLAIMS ALLOWED IS IN EXCESS OF 20, NO SUM LESS THAN \$20 PLUS \$1 ADDITIONAL FOR EACH CLAIM IN EXCESS OF TWENTY CAN BE ACCEPTED AS THE FINAL FEE.

IN REMITTING THE FINAL FEE GIVE THE SERIAL NUMBER AT THE HEAD OF THIS NOTICE.

UNCERTIFIED CHECKS WILL NOT BE ACCEPTED.

Respectfully,

THOMAS E. ROBERTSON,
Commissioner of Patents.

Richey & Watts,
1983 Union Trust Bldg.,
Cleveland, Ohio.

NOTICE.

Final Fee effective June 1, 1930.
\$25, with \$1.00 additional for
each claim in excess of 20.

364997—104

(\$20 Rec'd May 15 30 C. C. U. S. Patent Office J)
FINAL FEE PAID TO THE COMMISSIONER OF PATENTS

(Be careful to give correct Serial No.)

Serial No. 450,898

INVENTOR:

FRANK JARDINE

PATENT TO BE ISSUED TO

AS PER RECORD (Cleveland Trust Company)

NAME OF INVENTION, AS ALLOWED:

DATE OF PAYMENT:

May 15 1930

FEE:

\$20.00

DATE OF FILING:

March 9, 1921

DATE OF CIRCULAR OF ALLOWANCE:

May 9, 1930

The Commissioner of Patents will please apply the accompanying fee as indicated above.

RICHEY & WATTS,
Attorney.

SEND PATENT TO

Messrs. Richey and Watts
Union Trust Bldg.,
Cleveland, Ohio.

Final fees will not be received from other than the applicant, his assignee or attorney, or a party in interest as shown by the records of the Patent Office.

364997—105

(Mailed May 28 1930)

254

CAK:JTE
Paper No. 51

Div. 12 Room 380

Address only

"The Commissioner of Patents,
Washington, D. C."
and not any official by name

All communications respecting this application should give the serial number, date of filing, and name of the applicant

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE

Washington May 28, 1930.

Please find below a communication from the EXAM-
INER in charge of this application.

THOMAS E. ROBERTSON,
Commissioner of Patents.

Richey & Watts, 1983 Union Trust Bldg., Cleveland, Ohio.	Applicant Frank Jardine Ser. No. 450,898 (Renewal) Filed Mar. 9, 1921 For Pistons.
--	---

In accordance with the provisions of Order No. 2308,
dated March 12, 1917, which reads in part as follows:

.

Obvious informalities in the application may be corrected by the examiner, but said correction must be in the form of an amendment, approved by the Principal Examiner in writing, placed in the file, and made a part of the record. The changes specified in the amendment will be entered by the clerk in the regular way.

the changes, hereinafter specified, are made by the examiner in the application above identified.

Should these changes not be satisfactory to the applicant, appropriate amendment may be proposed under the provisions of Rule 78, provided the specification has not been printed.

The application has been amended as follows:

I

Claim 2, line 3, "*chordal*" has been substituted for "cordal."

C. C. HENRY,
Examiner.

364997-106

(Mail Room Sep 30 1930 U. S. Patent Office)

#55

UNITED STATES DISTRICT COURT
Northern District of Ohio
(Eastern Division)

HONORABLE COMMISSIONER OF PATENTS,
Washington, D. C.

Sir:

In compliance with the Act of February 18, 1922 (42 Stat. L. . . .), you are advised that there was filed on the 29th day of September 1929, in this court an action, suit, or proceeding No. 3510 entitled

Name The Cleveland Trust Company
Cleveland, Ohio

Plaintiff

Address Chrysler Corporation
Highland Park, Michigan

versus

Name The Simmons Manufacturing Company
3405 Perkins Ave., Cleveland, Ohio

Defendant

Address Sterling Products Corporation
2914 North Market St., St. Louis, Missouri

brought upon the following patents:

PATENT NO.	DATE OF PATENT.	PATENTEE.
1,092,870	April 14, 1914	Edward O. Spillman and Louis P. Mooers
1,402,309	Jan. 3, 1922	L. P. Mooers
1,153,902	Sept. 21, 1915	Gustave E. Franquist
1,472,233	Nov. 6, 1923	H. & H. Machine Company
16,273 Reissue	Feb. 23, 1926	Cleveland Trust Company
1,655,968	Jan. 10, 1928	Chrysler Corporation and Aluminum Co.
1,763,523	June 10, 1930	Cleveland Trust Company
1,256,265	Feb. 12, 1918	Victor E. Schmiedeknecht

PATENT NO.	DATE OF PATENT.	PATENTEE.
------------	-----------------	-----------

In the above-entitled case the following decision has been rendered or decree issued:

IN WITNESS WHEREOF I have affixed my hand this 29th day of Sept., 1923, at Cleveland, Ohio.

~~B. C. Mullan;~~

~~F. J. Denzler,~~

Clerk of said Court,

By RUTH STRAIN,

Deputy Clerk.

364997—107

(Mail Room Oct 27 1930 U. S. Patent Office)

#56

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF OHIO

(EASTERN DIVISION)

HONORABLE COMMISSIONER OF PATENTS,
Washington, D. C.

SIR:

In compliance with the Act of February 18, 1922 (41 42 Stat. L.), you are advised that there was filed on the 24 day of October 1923, in this court an action, suit, or proceeding No. 3561 entitled

Name Cleveland Trust Company, The Plaintiff
Address Cleveland, Ohio

versus

Name The Lawrence-Ohio Company Defendant
Address 6529 Euclid Ave., Cleveland, Ohio
D³

Ray Day Piston Company.
6656 Walton Ave., Detroit, Michigan

brought upon the following patents:

PATENT No.	DATE OF PATENT.	PATENTEE.
1,092,870	April 14, 1914	Edward O. Spillman and Louis P. Mooers
1,153,902	Sept. 21, 1915	Gustave E. Franquist
1,402,309	Jan. 3, 1922	The Cleveland Trust Company
1,763,523	June 10, 1930	The Cleveland Trust Company

In the above-entitled case, on the day of
..... 192..., the following patents have been in-
cluded by (insert amendment, answer,
cross bill, or other pleading:)

PATENT No.	DATE OF PATENT.	PATENTEE.
------------	-----------------	-----------

In the above-entitled case the following decision has
been rendered or decree issued: .

IN WITNESS WHEREOF I have affixed my hand this
25th day of October, 19230, at Cleveland, O.

~~B. C. Miller,~~

F. J. Denzler,

Clerk of said Court,

By RUTH STRAIN, .

Deputy Clerk.

364997-108

Jardine Patent No. 1,763,523

2121

(Mail Room Sep 29 1934 U. S. Patent Office)

Notice on Filing of Patent Case

#57

DISTRICT COURT OF THE UNITED STATES

NORTHERN DISTRICT OF OHIO

EASTERN DIVISION

Honorable Commissioner of Patents, Washington, D. C.

SIR:

In compliance with the Act of February 18, 1922 (41 Stat. L....), you are advised that there was filed on the 29th day of September, ~~1931~~ 1930, in this court an action, suit, or proceeding, No. 3510, entitled—

Name The Cleveland Trust Company, Plaintiff
Cleveland, Ohio

Name Chrysler Corporation
Michigan

versus

Name The Simmons Manufacturing Company, Defendant
Cleveland, Ohio

Name Sterling Products Corporation,
St. Louis, Missouri

brought upon the following patents:

F

PATENT NO.	DATE OF PATENT.	PATENTEE.
1,092,870	April 14, 1914	Edward O. Spillman & Louis P. Mooer
1,402,309	Jan. 3, 1922	L. P. Mooers
1,153,902	Sept. 21, 1915	Gustave E. Franquist
1,473,233	Nov. 6, 1923	H. & H. Machine Company
16,273 Reissue	Feb. 23, 1926	Cleveland Trust Company
1,655,968	Jan. 10, 1928	Chrysler Corp. and Aluminum Co.
1,763,523	June 10, 1930	Cleveland Trust Company
1,256,265	Feb. 12, 1918	Victor E. Schmiedeknecht

In the above-entitled case, on the day of 193..., the following patents have been included by

(Insert amendment, answer, cross bill, or other pleading)

PATENT NO.	DATE OF PATENT.	PATENTEE.
------------	-----------------	-----------

In the above-entitled case the following decision has been rendered or decree issued: Sept. 25, 1931 Interlocutory Decree filed & ent.; Letters Patent Nos. 1,092,870, 1,153,902, 1,256,265, 1,402,309, Re-16,273, good and valid in law; The Cleveland Trust Co. owner; Letters Patent No. 1,655,968, good and valid in law; The Cleveland Trust Co. and Chrysler Corp. owner; Letters Patent Nos. 1,763,523, 1,815,733 are good and valid in law and pltf, The Cleveland Trust Co. owner; that defendant the Simmons Manufacturing Co. has infringed all of said Letters Patent; Plaintiff to recover of defendant; that cause be referred to Wm. B. Woods, Special Master for accounting; injunction granted; Pltf. to recover of defendant costs Jones Judge

IN WITNESS WHEREOF, I have affixed my hand this 28th day of September, 1931, at Cleveland, Ohio.

B. C. MILLER,

F. J. DENSLER,

Clerk.

By W. L. STEVENS,

Deputy Clerk.

364997-109

(Mail Room Dec 16 1931 U. S. Patent Office)

Notice on Filing of Patent Office

#58

DISTRICT COURT OF THE UNITED STATES

NORTHERN DISTRICT OF OHIO

EASTERN DIVISION

Honorable Commissioner of Patents, Washington, D. C.

SIR:

In compliance with the Act of February 18, 1922 (41 42 Stat. L. . .), you are advised that there was filed on the 15th day of December, 1931, in this court an action, suit, or proceeding, No. 4106 Equity, entitled—

Name The Cleveland Trust Company,
Address Cleveland, Ohio

Plaintiff

versus

EE:

Name The Lawrence-Ohio Company,
Address Cleveland, Ohio

Defendant

brought upon the following patents:

PATENT NO.	DATE OF PATENT.	PATENTEE.
1,402,809	January 3, 1922	The Cleveland Trust Co.
1,763,523	June 10, 1930	The Cleveland Trust Co.
1,815,733	July 21, 1931	The Cleveland Trust Co.

In the above-entitled case, on the day of
....., 193..., the following patents have been
included by

(Insert amendment, answer, cross bill, or other pleading)

PATENT NO.	DATE OF PATENT.	PATENTEE.
------------	-----------------	-----------

In the above-entitled case the following decision has
been rendered or decree issued:

IN WITNESS WHEREOF, I have affixed my hand this
15th day of December, 1931, at Cleveland, Ohio.

B. C. MILLER,

F. J. Denzler,

Clerk.

By O. M. NELSON,

Deputy Clerk.

364997-110

(Mail Room Dec 19 1931 U. S. Patent Office)

#59

Notice on Filing of Patent Case

DISTRICT COURT OF THE UNITED STATES

NORTHERN DISTRICT OF OHIO

EASTERN DIVISION

Honorable Commissioner of Patents, Washington, D. C.

SIR:

In compliance with the Act of February 18, 1922 (41
Stat. L.....), you are advised that there was filed on
the day of, 193..., in this
court an action, suit, or proceeding, No. 3561 Equity,
entitled—

Name The Cleveland Trust Company, Plaintiff
Address Cleveland, Ohio

VERSUS

Name The Lawrence-Ohio Company,
Ray Day Piston Company, Defendant
Address 6529 Euclid Ave., Cleveland, Ohio
6656 Walton Ave., Detroit, Michigan.

brought upon the following patents:

D²

PATENT No.	DATE OF PATENT	PATENTEE
1,092,870	April 14, 1914	Edward O. Spillman & Louis P. Mooers
1,153,902	Sept. 21, 1915	Gustave E. Franquist
1,402,309	Jan. 3, 1922	The Cleveland Trust Company
1,763,523	June 10, 1930	The Cleveland Trust Company

In the above-entitled case, on the day of....
....., 193..., the following patents have been
included by
(Insert amendment, answer, cross bill, or other pleading)

PATENT No.	DATE OF PATENT	PATENTEE
------------	----------------	----------

In the above-entitled case the following decision has
been rendered or decree issued:

Dec. 16, 1931—Order dismissing case without preju-
dice at plaintiff's costs, filed and entered. Jones J.

IN WITNESS WHEREOF, I have affixed my hand this
18th day of December, 1931, at Cleveland, Ohio.

B. C. MURPHY, Clerk.

F. J. DUNKER,

By O. M. NELSON,

Deputy Clerk.

364997—111

(Mail Room Jun 11 1932 U. S. Patent Office)

Notice on Filing of Patent Case

#60

DISTRICT COURT OF THE UNITED STATES

NORTHERN DISTRICT OF OHIO

EASTERN DIVISION

Honorable Commissioner of Patents, Washington, D. C.

SIR:

In compliance with the Act of February 18, 1922 (41 Stat. L....), you are advised that there was filed on the 15th day of December, 1931, in this court an action, suit, or proceeding, No. 4106, entitled—

Name The Cleveland Trust Company,

Plaintiff

Address Cleveland, Ohio

versus

Name The Lawrence-Ohio Company,

Defendant

Address Cleveland, Ohio

brought upon the following patents:

PATENT NO.	DATE OF PATENT	PATENTEE
1,402,309	January 3, 1922	The Cleveland Trust Co.
1,763,523	June 10, 1930	The Cleveland Trust Co.
1,815,733	July 21, 1931	The Cleveland Trust Co.

In the above-entitled case, on the day of
....., 193..., the following patents have been
included by

(Insert amendment, answer, cross bill, or other pleading)

PATENT NO.	DATE OF PATENT	PATENTEE
------------	----------------	----------

In the above-entitled case the following decision has been rendered or decree issued:

June 10, 1932. Interlocutory Default Decree filed & ent. U. S. Letters Patent No. 1,815,733 good & valid in law as to claims 1, 15, 22, 25, to 30 incl. 41, 42, & 43: No. 1,763,523 good & valid in law as to claims 2, 4, 1; No. 1,402,309 good & valid in law as to claims, 3, 4, 8, & 11; Pltf. is owner of each of the above Letters Patent; deft. has infringed each of the claims thereof; pltf. to recover of deft.; cause referred to C. D. Friebolin to determine amt. of damages sustained; injunction granted; costs vs. deft. West J.

IN WITNESS WHEREOF, I have affixed my hand this
10th day of June, 1932, at Cleveland, Ohio.

B. C. MILLER, Clerk.

F. J. Donzler,

By W. L. STEVENS,

Deputy Clerk.

364997-112

(Mail Room Sep 22 1932 U. S. Patent Office)

#61

DISTRICT COURT OF THE UNITED STATES

EASTERN DISTRICT OF MICHIGAN

HONORABLE COMMISSIONER OF PATENTS,
Washington, D. C.

SIR:

In compliance with the Act of February 18, 1922
(42 Stat. L. 392), you are advised that there was filed
on the 19th day of September, 1932, in this court an
action, suit, or proceeding No. 3564, entitled:

Name The Cleveland Trust Company, Plaintiff,
Address Cleveland, Ohio

versus

Name Ray Day Piston Corporation of Detroit, Defendant,
Address Detroit, Michigan

brought upon the following patents:

PATENT No.	DATE OF PATENT	PATENTEE
1 1,402,309	Jan. 3d, 1922	Louis P. Mooers
2 1,763,523	June 10, 1930	Frank Jardine
3 1,815,733	July 20, 1931	Edward J. Gulick

In the above-entitled case, on the day of
....., 193 , the following patents have
been included by (insert
amendment, answer, cross bill, or other pleading):

PATENT No.	DATE OF PATENT	PATENTEE
------------	----------------	----------

In the above-entitled case the following decision has
been rendered or decree issued:

IN WITNESS WHEREOF I have affixed my hand this
Nineteenth day of September, 1932, at Detroit, Michigan.

ELMER W. VOORHEIS,
Clerk of said Court.

By: Albert L. Alhed,
Deputy Clerk.
364997—113

PRINTER'S NOTE:

A copy of U. S. Patent No. 1,763,523, June 10, 1930,
to F. Jardine, was bound in the original of this Exhibit
at this point, but inasmuch as it appears, *supra*, at page
1291, as Plaintiff's Exhibit No. 3, it has been omitted to
comply with the Equity Rule against duplication.

2—421

18/27.

1920

CONTENTS:

1. Application 2 papers.
2. Rev. and Power of Attorney June 19/20
3. Notices of Revocation and Acceptance June 23/20
4. Change of Address (atty.) July 12, 1920
5. Renewal March 8, 1921
6. Amendment A March 8, 1921
7. Rej. Apr 9-1921
8. Amendment B and Oath Jan. 23, 1922
9. Rej. Jan 30 1922
10. Amendment C Feb. 6, 1922
11. Rej. May 6-22
12. Letter to Office. June 15, 1922
13. Amendment D July 21, 1922
14. Final Rej. Oct 5-1922
15. Sug. Claims Apr 5-1923
16. Amendment E May 3, 1923
17. Intf Brief "A"
18. Intf Letter "A" Jul 7-1923
19. Intf Brief "B"
20. Intf Letter "B" Jul 7-1923
21. Intf Brief "C"
22. Intf Letter "C" Jul 7-1923
23. Intf Brief "D"

24. Intf Letter "D" Jul 7-1923
25. Intf Brief "E"
26. Intf Letter "E" Jul 7-1923
27. Intf Brief "H"
28. Intf Letter "H" Jul 7-1923
29. Intf Brief "I"
30. Intf Letter "I" Jul 7-1923
31. Intf Brief "J"
32. Intf Letter "J" Jul 7-1923
33. Intf Brief "K"
34. Intf Letter "K" Jul 7-1923
35. Intf Brief "M"
36. Intf Letter "M" Jul 7-1923
37. Intf Brief "N"
38. Intf Letter "N" Jul 7-1923
39. Intf Brief "O"
40. Intf Letter "O" Jul 7-1923
41. Intf Brief "U"
42. Intf Letter "U" Jul 7-1923
43. Intf Brief "V"
44. Intf Letter "V" Jul 7-1923
45. Add. party Dec 3-1923
46. Party Added Dec 3-1923
47. Party Added Dec 3-1923
48. Sub. Power of Atty Nov. 5/23
49. " " " " Nov 12/25
50. Amendment F (not ent.) Aug. 13, 1928
51. Final Rejection (Rule 132) Feb 8-1930
52. Amendment G May 8-1930
53. Amendment K May 8-1930
54. Err's Amendment I May 28-1930
55. Notice of Suit Sept. 30-1930

364997-114

OK

Search Made

Class	Date
56. Notice of Suit	Oct. 27-1930
57. Notice of Suit	Sept. 29-1931
58. Notice of Suit	Dec. 16-1931
59. Notice of Suit	Dec. 19-1931
60. Notice of Suit	June 11-1932
61. Notice of Suit	Sept. 22-1932
62.	

364997-115

DEFENDANTS' EXHIBIT 4-L,.

**File Wrapper and Contents of Schmiedeknecht Patent
Patent in Suit.**

***(Filed January 27, 1934.)**

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**DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE**

To all persons to whom these presents shall come, Greeting:

THIS IS TO CERTIFY that the annexed is a true copy from the records of this office of the File Wrapper and Contents, in the matter of the Letters Patent of Victor E. Schmiedeknecht, Number 1,256,265, Granted February 12, 1918 for Improvement in Pistons.

IN TESTIMONY WHEREOF I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the City of Washington, this fourteenth day of January, in the year of our Lord one thousand nine hundred and thirty-three and of the Independence of the United States of America the one hundred and fifty-seventh.

THOMAS E. ROBERTSON,

(Seal)

Commissioner of Patents.

ATTEST:

D. E. WILSON,

Chief of Division.

NUMBER (SERIES OF 1915),

180511

1917

DIV. 12 PATENT No. 1256265

(EX'R'S BOOK) 74-9 B

**Name Victor E. Schmiedeknecht
of Louisville
County of
State of Kentucky.
Invention Pistons.**

PARTS OF APPLICATION FILED.

Original.		Renewed.
Petition	July 14, 1917	, 191
Affidavit	" " 1917	, 191
Specification	" " 1917	, 191
Drawing	" " 1917	, 191
Photo Copy	, 191	, 191
First Fee Cash \$15	July 14, 1917	, 191
" " Cert.	, 191	, 191
Appl. filed complete	July 14, 1917	, 191

Examined and Passed for

Issue	Dec. 21, 1917	, 191
L. A. Sadler	Exr. Div. 12	Exr. Div.
Notice of Allowance	Dec. 28, 1917	, 191
	By Commissioner.	By Commissioner.
Final Fee Cash \$20	Jan. 17, 1918	, 191
" " Cert.	, 191	, 191
Patented	Feb. 12, 1918	, 191
Attorney	William B. Munnell, 414 S. Third Street Louisville, Ky.	

2

Associate Attorney

3

(No. of Claims Allowed 3) Title as Allowed Piston.
(Cl. 74-85)
O. G. Cl. 2

Division of App. No....., filed....., 191..

6295

(\$15 Rec. Jul 14 1917 dft E C. C. U. S. Pat. Office)

(Jul 17 1917 U. S. Patent Office \$15 Dft)

(1)
285

180,511
Division 12, Paper No. 1

PETITION

To the Commissioner of Patents:

Your petitioner, Victor E. Schmiedeknecht, a citizen of the United States, residing in the city of Louisville county of Jefferson, and state of Kentucky, whose post office address is 723 W. Jefferson, prays that letters patent may be granted to him for the improvement in "Pistons" set forth in the annexed specification.

And he hereby appoints William B. Munnell of 414 S. Third street, Louisville, Kentucky, whose registration number is 9063, his attorney, with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to receive the patent and to transact all business in the Patent Office connected therewith.

Signed at Louisville, in the county of Jefferson and state of Kentucky this 11th day of July, 1917.

Inventor's full name VICTOR E. SCHMIEDEKNECHT.
180511—1

6296

Specification

To all whom it may concern:

Be it known that I, VICTOR E. SCHMIEDEKNECHT, a citizen of the United States, residing at Louisville, in the county of Jefferson, and State of Kentucky, have invented a new and useful Improvement in "Pistons," of which the following is a specification.

This invention relates to pistons for internal combustion motors.

It has been ascertained to be essential that pistons of internal combustion motors should be as light as possible. In accordance with accepted construction pistons are hollow cylinders, closed at one end and open at the other, a connecting rod being secured interiorly thereof intermediate of their length by means of a transverse pin. Bosses projected inward from the side walls of the piston provide bearings for the pin. It was formerly ~~that thought~~ that a shearing stress was exerted on this pin, and that the strain was transmitted to the side walls longitudinal thereof, and that the metal being under compression, the wall could be very thin, but failure of piston walls so constructed lead to the conclusion that the connecting rod exerted a bending stress on the pin by which a lateral strain was transmitted to the walls causing them to fracture around the bosses. This discovery necessitated an increase in the thickness of the walls and the use of

per C braces or brackets extended from the bosses to the piston head, or to the wall, but these expedients tend to increase the weight of the piston. To reduce piston weight, resort has been had to the use of metals (such as aluminum, or alloys

thereof) which have a lower specific gravity than cast iron, the metal commonly used; but the co-

(1)

180511-2

Schmiedeknecht—Pistons

6297

efficient of expansion of aluminum is greater than that of iron, of which motor cylinders are generally made. Consequently it is difficult to get a proper fit, as for if the piston is of such size as to fit in the cylinder properly when at maximum temperature, gas and oil will leak by, when as at starting, the piston is cool.

An object of this invention is to provide a piston of minimum weight, with maximum structural strength.

To the accomplishment of the foregoing and other objects, said invention consists of the novel construction, association and relative arrangement of parts, members and features hereinafter fully described and particularly pointed out in the claims appended hereunto.

In the drawing, wherein similar reference characters designate like parts in the several views, Figure 1, is a front elevation of an embodiment of the invention: Fig. 2, a side elevation thereof: Fig. 3, a central transverse section on Fig. 1: Fig. 4, a bottom plan view: and Fig. 5, a fragmental sectional view.

per A Referereng now in detail to the drawing, the reference character —10— designates, as an entirety entirety, a piston, the side walls, —11— of which are provided with a plurality of grooves —12— adapted for the reception of piston rings. An oil ring groove —13— is located just below the groups of piston ring grooves, and from the floor of this groove, a plurality of perforations —15— lead through the wall of the piston, and serve as an avenue of escape for oil that may accumulate beneath the lower ring during the down stroke of the piston. The floor of this groove, is suitably inclined to facilitate the operation of drilling the holes, 15. The only portions of the apron of the piston (i.e. that portion of the wall which depends below the pin) which bear efficiently against the walls of the cylinder are those, fore and aft, which lie in the plane of the movement of the connecting rod about the pin. The side por-

(2)

180511-3

Schmiedeknecht—Pistons

6298

tions (those below the ends of the pin) serve to steady the piston against lateral motion. I remove a portions

of said apron, leaving ~~an~~ openings —16— each of which extends circumferentially approximately one sixth third of the distance around the piston, and longitudinally from a point just below the oil groove to within a spaced distance of the lower end of the piston, leaving a band —18— of sufficient width to give a satisfactory bearing surface. Alined bearings —19— each of which has a suitable bore —20— for the reception of a piston ring pin, are attached at their outer ends to the head section at the upper edge of the openings —16— centrally thereof.

The inner end of each of the bearings are is supported by a transverse bridge or truss —21— joined respectively, centrally to the bearings and terminally to the edges of the portions 17 of the apron of the piston.

It is ~~that thought~~ that the many advantages of a piston constructed in accordance with the foregoing description will be evident to those skilled in the art.

The walls may be considerable thinner than with the usual construction, as they are not subjected to lateral strain, the bearings being supported on the inner end by a bridge supported by the side walls, which gives great rigidity to them, offering a maximum resistance to the bending strain exerted by the pin. The removal of portions of the apron also serves to reduce the weight.

It is to be understood that applicant reserves the right to resort to such changes, modifications, and variations, as may properly come within the scope of the appended claims.

Having thus described my invention so that those skilled in the art may make and use the same,

I claim:

180511—4

Schmiedeknecht—Pistons

6299

~~Claims~~

1. A piston comprising a head section and a depending apron having oppositely disposed openings therein, alined bearings the outer ends of which are suspended from said ~~apron~~ head section within said openings, and bridges sustaining the inner ends of said bearings.
2. A piston comprising a head section, and a depending cylindrical side walls, apron said

side walls head section being provided with a plurality of grooves for the reception of rings, and an oil groove having perforations leading from its floor to the interior of the piston, said wall apron having an opening below said oil groove, a bearing the outer end of which is suspended from the head section at upper edge of said opening, and a transverse bar attached respectively to the inner end of said bearing and to the side wall apron.

3. A piston, comprising a head, and a depending apron having an opening therein, a bearing the outer end of which is attached to the head at the upper edge of said opening, and a transverse bar adapted to support the inner end of said bearing.

Applicants full Name Victor E. Schmiedeknecht.

180511-5

6300

OATH

COUNTY OF JEFFERSON,
STATE OF KENTUCKY, S.S.

Victor E. Schmiedeknecht, the above named petitioner, being duly sworn, deposes and says that he is a citizen of the United States, residing at 427 Western Parkway, in the city of Louisville, county of Jefferson and state of Kentucky: that he verily believes himself to be the first, sole and original inventor of the improvement in "Pistons" described and claimed in the annexed specification: that he does not know and does not believe that the same was ever known or used before his invention or discovery thereof, or patented or described in any printed publication in any country before his invention or discovery thereof or more than two years prior to this application, or on sale or in public use in the United States more than two years prior to this application, that said invention has not been patented in any country foreign to the United States on any application filed by him or his legal representatives or assigns more than twelve months prior to this application, and that no application has been filed by him or his legal representatives or assigns in any country foreign to the United States.

Inventor's full Name VICTOR E. SCHMIEDEKNECHT.

Sworn to and subscribed, before me in the city of Louisville, county of Jefferson and state of Kentucky, this 11th day of July 1917.

ELIZARETH K. BIRD,

(Notarial Seal)

Notary Public.

My Commission Expires January 20, 1918.

180511—6

(Patent Office Oct 9 1917 Mailed)

2—260

Div. 12 Room 322

N/h Paper No. 2

Address only

"The Commissioner of Patents,
Washington, D. C.,"
and not any official by name.

All communications respecting this
application should give the serial number,
date of filing, title of invention, and
name of the applicant.

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE
Washington

October 9th, 1917.

William B. Munnell,
414 S. Third Street,
Louisville Kentucky.

Please find below a communication from the Examiner in charge of the application of Victor E. Schmiedeknecht, for Pistons, filed July 14, 1917, Serial Number 180,511.

JAMES T. NEWTON,
Commissioner of Patents.

This case has been examined.

Page 1, line 13 "thought" is misspelled. Line 22, change "tend" to *tending*. Line 24, "aluminum" is misspelled.

Page 2 line 2 change the comma after made to a period and capitalize the first letter of "consequently." Line 3, change "as" to *for*. Line 17 "referring" is misspelled. Line 18, "entirety" is misspelled.

Page 4, line 3 the openings "16" seem to extend more than 1/6 the way around the piston. Line 9 is objectionable. The bearings 19 are attached to the "head at the upper edge of the opening 16." Line 10 change "are" to is. Line 13 "thought" is misspelled.

In claim 1 line 3 "apron" should be changed to head.

Claim 2 is objectionable in the following respects.

Line 1 "side" should be cancelled and a inserted before "depending." Line 2 "walls" should be changed to apron and "side walls" changed to head after said. Line 4, "wall" should be changed to apron. Line 6, insert head at the before "upper." Last line change "side

180511-7

Page 2—#180,511.

wall" to apron.

In claim 3, line 3 insert head at the before "upper."

The claims barring the informalities above noted are probably allowable.

The following patents are made of record—

Spillman et al, 1,092,870, April 14, 1914, (74-85),
British to Pugh, 17,356, July 27, 1907, (sheet 1)
(74-85)

Rohm, 1,232,846, July 10, 1917, (74-85).

Green, 1,228,909, June 5, 1917, (74-85).

L. A. SADLER,

Exr. Div. 12

N

180,511-8

(Mail Room Nov 17 1917 U. S. Patent Office)

Division 12, Paper No. 3

A Nov 19 1917

U. S. Patent Office.

Div. 12, Room 322
in re V. Schmiedeknecht
Pistons

Filed July 14, 1917
#180,511
Responsive to action of
Oct. 9, 1917.

A

Hon. Commissioner of Patents:

Sir:

Amend the above noted case as follows:

Page 1, line 13, correct the spelling of "thought"
line 24, correct the spelling of "aluminum"

- Page 2, line 2, change the comma after "made" to a period and capitalize "consequently"
line 3, change "as" to *for*
line 17, correct the spelling of "referring"
line 18, correct the spelling of "entirety"
- Page 3, line 3, change "one sixth" to *one third*
line 9, before "upper" insert *head section at the*;
line 10, change "are" to *is*
line 13, change "thot" to *thought*
- Claim 1, line 1, after "head" insert *section*
line 3, change "apron" to *head section*
- Claim 2, line 1, after "head" insert *section*: insert *a*;
before "depending" erase "side"
line 2, change "walls" to *apron*: change "side walls" to *head section*
line 6, insert *head section at the* before "upper"
last line change "side wall" to *apron*
- Claim 3, line 3, insert *head at the* before "upper"
- And pass the claim case to issue.

Respectfully submitted,

W. B. MUNNELL,

Attorney for Applicant.

Louisville Ky.
Nov. 15, 1917

180511-9

(Patent Office Nov 24 1917 Mailed)

2-260

Div. 12 Room 322

N/h

Paper No. 4

Address only

"The Commissioner of Patents,
Washington, D. C.,"
and not any official by name.

All communications respecting this application should give the serial number, date of filing, title of invention, and name of the applicant.

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE
Washington

November 24, 1917.

William B. Munnell,
414 S. Third Street,
Louisville, Ky.

Please find below a communication from the Examiner in charge of the application of Victor E. Schmiedeknecht, for Pistons, filed July 14, 1917, Serial Number 180,511.

JAMES T. NEWTON,
Commissioner of Patents.

In response to amendment filed November 17, 1917.
Page 1, line 22, should not "tend" be changed to
tending.

Claim 2 line 4, change "wall" to *apron*.

The case is otherwise ready for allowance.

L. A. SADLER,

Exr. Div. 12.

N

•180511—10

(Mail Room Dec 3 1917 U. S. Patent Office)

For Div. 12

Division 12, **Paper No. 5**

B Dec 5 1917

U. S. Patent Office

Div. 12, Room 322
in re V. Schmiedeknecht
Pistons

Filed July 14, 1917

#180,511

Responsive to action of
Nov. 24, 1917.

B

Hon. Commissioner of Patents:

Sir:

Amend the above noted application as follows:

Claim 2, line 4, change "wall" to *apron*

REMARKS

Applicant is of the opinion that the use of "tend" in line 22, of page 1, is proper, as the "expedients" referred to are present practice.

Respectfully submitted,

W. B. MUNNELL,

Attorney for Applicant.

Louisville Ky.
Nov. 26 30, 1917.

180511-11

(Patent Office Dec 12 1917 Mailed)

2-260

Div. 12 Room 322

Paper No. 6

Address only

"The Commissioner of Patents,
Washington, D. C.,"
and not any official by name.

All communications respecting this application should give the serial number, date of filing, title of invention, and name of the applicant.

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Washington

Dec. 12, 1917.

William B. Munnell,
414 South Third st.,
Louisville, Ky.

Please find below a communication from the Examiner in charge of the application of Victor E. Schmiedeknecht, filed July 14, 1917, Pistons, Serial No. 180,511.

JAMES T. NEWTON,

Commissioner of Patents.

Case reconsidered as amended Dec. 3, 1917.

Applicant evidently has not read the sentence beginning on line 19, carefully since the use of "tend," in line 22, undoubtedly renders the sentence ungrammatical.

If "tend" be retained it will be necessary to insert "but" before "these".

The case is otherwise allowable.

L. A. SADLER,

Exr. Div. 12.

N.
N

180511-12

(Mail Room Dec 17 1917 U. S. Patent Office)

Division 12, Paper No. 7

Dec 19 1917

U. S. Patent Office

Filed July 14, 1917.

#180,511

Responsive to action of
Dec. 12, 1917.

Div. 12, Room 322
in re V. Schmiedeknecht
Pistons

C

Hon. Commissioner of Patents:

Sir:

Amend the above noted application as follows:

Page 1, line 22, insert *but* before "these"

At the end of line 20, insert *the use of*

Respectfully submitted,

W. B. MUNNELL,

Attorney for Applicant.

Louisville Ky.
Dec. 15, 1917.

180511-13

2-181

Serial No. 180,511

Address only

The Commissioner of Patents,
Washington, D. C.

AH

DEPARTMENT OF THE INTERIOR

UNITED STATES PATENT OFFICE

Washington Dec., 28, 1917.

Victor E. Schmiedeknecht,

Sir: Your Application for a patent for an Improvement in Piston, filed July 14, 1917, has been examined and Allowed.

The final fee, Twenty Dollars, must be paid not later than Six Months from the date of this present notice of allowance. If the final fee be not paid within that period, the patent on this application will be withheld, unless renewed with an additional fee of \$15, under the provisions of Section 4897, Revised Statutes.

The office delivers patents upon the day of their date, and on which their term begins to run. The printing, photolithographing, and engrossing of the several patent parts, preparatory to final signing and sealing, will require about four weeks, and such work will not be undertaken until after payment of the necessary fee.

When you send the final fee you will also send, Distinctly and Plainly Written, the name of the Inventor, Title of Invention, and Serial Number as Above Given, Date of Allowance (which is the date of this circular), Date of Filing, and, if assigned, the Names of the Assignees.

If you desire to have the patent issue to Assignees, an assignment containing a Request to that effect, together with the Fee for recording the same, must be filed in this office on or before the date of payment of final fee.

After issue of the patent uncertified copies of the drawings and specifications may be purchased at the price of Five Cents Each. The money should accompany the order. Postage stamps will not be received.

Final fees will Not be received from other than the applicant, his assignee or attorney, or a party in interest as shown by the records of the Patent Office.


Respectfully,


Thomas Ewing,

J. I. Newton,

Commissioner of Patents.

William B. Munnell,
414 South Third Street,
Louisville, Ky.,

 In Remitting the Final Fee Give the Serial Number at the Head of this Notice.

 Uncertified Checks Will Not Be Accepted.

180511-14

(\$20. Rec'd Jan 17 1918 C. C. U. S. Pat. Office)

Patents Obtained
Trade Marks RegisteredMechanical Expert
Inventions Developed

W. B. MUNNELL

REGISTERED PATENT ATTORNEY

414 S. Third Street, Louisville, Ky.

Jan. 14, 1918.

in re V. E. Schmiedeknecht
Piston

Filed July 14, 1917

Allowed Dec. 26, 1917.

#180,511

Hon. Commissioner of Patents:

Sir:

C Herewith find New York Draft #A13087, for
\$20.00, being the final fee in the above noted case.Enclosed find coupon order for which please send
me a printed copy of the patent when issued.

Respectfully,

W. B. MUNNELL,

Attorney for Applicant.

WBM-McA

(encl)

to Div. F

180511-15

(Mail Room Sep 30 1930 U. S. Patent Office)

UNITED STATES DISTRICT COURT

#9

NORTHERN DISTRICT OF OHIO (EASTERN DIVISION)

Honorable Commissioner of Patents,
Washington, D. C.

Sir:

In compliance with the Act of February 18, 1922 (41
42 Stat. L.), you are advised that there was filed
on the 29th day of September 1923, in this court an
action, suit, or proceeding No. 3510 entitled

Name The Cleveland Trust Company

Plaintiff

Address Cleveland, Ohio

Chrysler Corporation
Highland Park, Michigan

versus

Name The Simmons Manufacturing Company
 Address 3405 Perkins Ave., Cleveland, Ohio
 Sterling Products Corporation -
 2914 North Market St., St. Louis, Missouri
 Defendant

brought upon the following patents:

PATENT NO.	DATE OF PATENT.	PATENTEE.
1,092,870	April 14, 1914	Edward O. Spillman and Louis P. Mooers
1,402,309	Jan. 3, 1922	L. P. Mooers
1,153,902	Sept. 21, 1915	Gustave E. Franquist
1,472,233	Nov. 6, 1923	H. & H. Machine Company
16,273		
Reissue	Feb. 23, 1926	Cleveland Trust Company
1,655,968	Jan. 10, 1928	Chrysler Corporation and Aluminum Co.
1,763,523	June 10, 1930	Cleveland Trust Company
1,256,265	Feb. 12, 1918	Victor E. Schmiedeknecht

PATENT NO.	DATE OF PATENT.	PATENTEE.
------------	-----------------	-----------

In the above-entitled case the following decision has been rendered or decree issued:

IN WITNESS WHEREOF I have affixed my hand this 29th day of Sept., 1930, at Cleveland, Ohio.

B. C. Martin,

F. J. Denzler,

Clerk of said Court,

By RUTH STRAIN,

Deputy Clerk.

180511-16

(Mail Room Sep 29 1931 U. S. Patent Office)

NOTICE OF FILING OF PATENT CASE

DISTRICT COURT OF THE UNITED STATES

NORTHERN DISTRICT OF OHIO

EASTERN DIVISION

Honorable Commissioner of Patents, Washington, D. C.

Sir:

In compliance with the Act of February 18, 1922 (41 Stat. L.), you are advised that there was filed

on the 29th day of September, 1930, ~~1931~~, in this court
an action, suit, or proceeding, No. 3510, entitled—

Name The Cleveland Trust Company,
Cleveland, Ohio

Name Chrysler Corporation,
Michigan

Plaintiff

Address

versus

Name The Simons Manufacturing Company,
Cleveland, Ohio

Name Sterling Products Corporation,
St. Louis, Missouri

Defendant

Address

brought upon the following patents:

PATENT NO.	DATE OF PATENT	PATENTEE
1,092,870	April 14, 1914	Edward O. Spillman & Louis P. Mooer
1,402,309	Jan. 3, 1922	L. P. Mooers
1,153,902	Sept. 21, 1915	Gustave E. Franquist
1,473,233	Nov. 6, 1923	H. & H. Machine Company
16,273		
Reissue	Feb. 23, 1926	Cleveland Trust Company
1,655,968	Jan. 10, 1928	Chrysler Corp. and Aluminum Co.
1,763,523	June 10, 1930	Cleveland Trust Company
1,256,265	Feb. 12, 1918	Victor E. Schmiedeknecht

In the above-entitled case, on the day of
....., 193..., the following patents have been
included by
(Insert amendment, answer, cross bill, or other pleading)

PATENT NO.	DATE OF PATENT	PATENTEE
------------	----------------	----------

In the above-entitled case the following decision has
been rendered or decree issued: Sept. 25, 1931 Inter-
locutory Decree filed & ent.; Letters Patent Nos. 1,092-
870, 1,153,902, 1,256,265, 1,402,309, Re-16,273, good and
valid in law; The Cleveland Trust Co. owner; Letters
Patent No. 1,655,968, good and valid in law; The Cleve-
land Trust Co. and Chrysler Corp. owner; Letters Pat-
ent Nos. 1,763,523, 1,815,733 are good and valid in law
and pltf. The Cleveland Trust Co. owner; that defend-
ant the Simons Manufacturing Co. has infringed all of
said Letters Patent; Plaintiff to recover of defendant;

that cause be referred to Wm. B. Woods, Special Master for accounting; injunction granted; Pltf. to recover of defendant costs Jones Judge

IN WITNESS WHEREOF, I have affixed my hand this 28th day of September, 1931, at Cleveland, Ohio.

B. C. MULLAN, Clerk.

F. J. Denzler

By **W. L. STEVENS**,

Deputy Clerk.

180511-17

PRINTER'S NOTE:

A copy of U. S. Patent No. 1,256,265, Feb. 12, 1918, to V. E. Schmiedeknecht, was bound into the original of this Exhibit at this point, but inasmuch as it appears *supra*, at page 1305, as Plaintiff's Exhibit No. 5, it has been omitted to comply with the Equity Rule against duplication.

2-421

1917

CONTENTS:

74 Machine Elements Guides, Cylindrical. 1256265

1. Application 1 papers.
2. Letter Oct 9 1917
3. Amendment A Nov. 17, 1917
4. Letter Nov 24 1917
5. Amendment B Dec. 3, 1917
6. Letter Dec. 12, 1917
7. Amendment C Dec. 17, 1917
8. Notice of Suit Sept. 30-1930
9. Notice of Suit Sept. 29-1931

180511-18

DEFENDANTS' EXHIBIT 4-L
File Wrapper and Contents of Maynard
Patent in Suit.

(Filed January 27, 1934.)

390

DEPARTMENT OF COMMERCE

UNITED STATES PATENT OFFICE

*To all persons to whom these presents shall come,
Greeting:*

THIS IS TO CERTIFY that the annexed is a true copy from the records of this office of the File Wrapper and Contents, in the matter of the Letters Patent of Howard E. Maynard, Assignor, by Direct and Mesne Assignments, of one-half to Chrysler Corporation and one-half to Aluminum Company of America, Number 1,655,968, Granted January 10, 1928, for Improvement in Pistons.

IN TESTIMONY WHEREOF I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the City of Washington, this fourteenth day of January, in the year of our Lord one thousand nine hundred and thirty-three and of the Independence of the United States of America the one hundred and fifty-seventh.

THOMAS E. ROBERTSON,
Commissioner of Patents.

(Seal)

ATTEST:

D. E. WILSON,
Chief of Division.

NUMBER (SERIES OF 1925 1915)
434467

1927 1921

PATENT No. 1655968
Dated Jan 10 1928

Div. 12

(Ex'r's Book).....

Name Howard E. Maynard

(Old wrapper with record of actions inside)

of
State of
Invention Pistons

PARTS OF APPLICATION FILED.

Original	Renewed
Application filed complete , 1927	
Petition, Specification, } , 1927	
Oath, First Fee \$20, }	
.. sheets Drawings, }	
<hr/>	
Examined and passed for Issue Nov 25, 1927	Reexam'd and passed for Issue , 192
P. P. Pierce Exr. Div. 12	Exr. Div.
Notice of Allowance Nov 25 1927 , 192	Notice of Allowance , 192
By Commissioner.	By Commissioner.
Final Fee \$20. Dec 15, 1927	Final Fee , 192
Attorney	
Associate Attorney	
No. of Claims Allowed 11	Print Claims in O. G. Class
Title as Allowed	
Division of App., No. , filed , 19	

1921

Number (Series of 1915),

434467

(Ex'r's Book) 128-1-D

Div. 12

(4)

PATENT NO.

Name Howard E. Maynard Assor by direct and mesne assigns of $\frac{1}{2}$ to Chrysler Corporation, of Highland Park, Mich., a corp. of Delaware, and $\frac{1}{2}$ to Aluminum Manufacturers, Inc., of Cleveland, Ohio, a Corp. of Delaware Company of America, of Pittsburgh, Penna., a corp. of Pennsylvania.

of Detroit
County of
State of Michigan
Invention Pistons

1

2

24

26

27

55

PARTS OF APPLICATION FILED.

Original

Renewed

Petition	Jan 3, 1921	, 192
Affidavit	" " 1921	, 192
Specification	" " 1921	, 192
Drawing	" " 1921	, 192
Photo Copy	May 18, 1923	, 192
First Fee Cash \$15	Jan 3, 1921	, 192
" " Cert.	, 192	, 192
Appl. filed complete	Jan 3, 1921	, 192

Examined and Passed for Issue

Nov 25, 1927

, 192

P. P. Pierce Exr. Div. 12

Exr. Div.

Notice of Allowance Nov 25, 1927

, 192

By Commissioner.

By Commissioner

Final Fee Cash \$20 Dec 15, 1927

, 192

" " Cert.

, 192

, 192

Patented

, 192

Attorney Whittemore, Hulbert & Whittemore

Penobscot Bldg. Detroit, Mich

Associate Attorney J. King Harness, 1211 Majestic

Bldg. Detroit, Michigan

(No. of Claims Allowed 11) Print Claims 1 in O. G.

(Cl. 74-108.)

Title as Allowed Pistons

Division of App., No., filed, 191..

434467

(\$15 Rec'd Jan 3 1921 C. C. U. S. Pat. Office Ok 5)

Division 12, Paper No. 1

Jan 6 1921

U. S. Patent Office

James Whittemore

Prescott M. Hulbert

Laurence J. Whittemore

Wm. J. Belknap.

Patent and Trade Mark
Practice

Law Offices of

WHITTEMORE, HULBERT & WHITTEMORE

Suite 1112 Penobscot Building

Detroit, Mich., December 30, 1920.

Hon. Commissioner of Patents,
Washington, D. C.

Sir—

provement in Pistons (Attorneys' Number 15,556), together with check for \$15.00 to cover the filing fee thereon.

Kindly acknowledge receipt, and oblige

Very respectfully,

JPB
incs

WHITTEMORE, HULBERT & WHITTEMORE.

434467-1

8442

(Mail Room Jan 3 1921 U. S. Patent Office)

434467

Division 12, Paper No. 1

Jan 6 1921

No. 15,556.

U. S. Patent Office

PETITION

To the Commissioner of Patents:

Your petitioner, Howard E. Maynard, a citizen of the United States of America, residing at Detroit, (Post-office Address: #700 Calvert Avenue), in the County of Wayne, in the State of Michigan, prays that Letters Patent may be granted to him for the improvement in Pistons, set forth in the annexed specification.

And he hereby appoints Whittemore, Hulbert & Whittemore, a firm composed of James Whittemore, Prescott M. Hulbert and Laurence J. Whittemore and William J. Belknap, of Detroit, Michigan, his attorneys, with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to sign the drawings, to receive the Patent, and to transact all business in the Patent Office connected therewith.

HOWARD E. MAYNARD.

(United States Documentary Stamp 25 Cents W.H.&W.)

SPECIFICATION.

To all whom it may concern:

BE IT KNOWN that I, Howard E. Maynard, a citizen of the United States of America, residing at Detroit, in the County of Wayne and State of Michigan, have invented certain new and useful improvements in Pistons,

of which the following is a specification, reference being had therein to the accompanying drawings:

434467—2

15,556.

8443

Flet

The invention relates to pistons designed for use in internal combustion engines and has for its object the prevention of "pumping" of oil and the "freezing" due to excessive expansion. In the present state of the art it is usual to construct pistons with a cylindrical ring portion having a relatively large clearance with reference to the diameter of the cylinder, and a skirt portion more closely fitting the same and which holds the piston in proper alignment and prevents side slapping. To avoid sticking or freezing of this skirt, due to expansion, certain constructions of pistons have provided the skirt with a longitudinal slot therein to compensate for expansion, but there is one serious difficulty with all such constructions, viz., the tendency for the lubricating oil to work up beyond the skirt and rings and into the explosion chamber. This results in the formation of carbon and other difficulties incident thereto. With the present invention I have overcome this difficulty by arranging between the cylindrical ring portion and the skirt portion a continuous annular groove. This will receive the oil creeping past the skirt and permitting the same to drop back in the cylinder without providing any bridge for its passage to the ring portion. The result is that the cylinder will be fully lubricated, while the excess of lubricant will be scraped off by the lowermost piston rings into the annular groove, where it is permitted to drop back into the cylinder.

In the drawings:

Figure 1 is a perspective view of my improved construction;

—2—

434467—3

8444

Figure 2 is a transverse section thereof; and

Figure 3 is a similar view in plane at right angles to Figure 2.

A is the piston head having a depending cylindrical portion B grooved to receive the rings C and of a diameter to afford abundant clearance within the engine cyl-

inder. D is a skirt, which is preferably of a diameter to closely fit the cylinder. This skirt is itself discontinuous with the cylindrical portion B of the piston, being separated therefrom by a groove E, which extends completely around the same. The connection between the two parts is formed by webs F on diametrically opposite sides of the piston, said webs extending inward from the portion B and vertically downward and having formed integral therewith the bearings G for the wrist pin. These webs are connected to the skirt on their opposite vertical edges, but are not connected thereto either at top or bottom. Thus there are formed the recesses H surrounding the bearings G with segmental skirt portions on opposite sides thereof and an annular skirt portion below said segmental skirt portions. One of the sides of the skirt between the points of attachment of the webs thereto is longitudinally slitted, as indicated at I, and this slit compensates for expansion and permits the skirt to conform itself to the cylinder.

With the construction as described, when the piston is in operation, the lubricant upon the wall of the

—3—

434467—4

8445

cylinder is spread by the skirt portion of the piston and will be forced upward to the groove E at the upper end of the skirt. Further creeping is prevented by this groove and when the accumulation of oil is sufficient, it will drop back inside of the skirt. At no time is there a body of the oil adjacent to the piston rings and for this reason when the engine is upon suction stroke, any leakage past the ring cannot draw oil upward. As a further safeguard, the cylindrical portion B below the lowermost of the ring C is cut away to provide a further clearance, as indicated at J, this clearance being sufficient to prevent the bridging of the oil thereacross. Thus on each downward stroke of the piston, the lowermost ring will scrape all surplus oil from the surface of the cylinder and in the upward stroke the oil thus accumulated will pass through the groove E and downward. Any oil accumulating in the recesses H will follow down the webs F and there is no chance at any point for the accumulation of oil adjacent to the rings. (X)

—4—

434467—5

What I claim as my invention is:

Per C 1. A piston comprising a cylindrical ring
Per B portion and a split cylindrical skirt portion
Insert C¹ forming a guide for the piston C¹, said por-
Per A tions being separated from each other by a
Ricardo continuous circumferential groove, web por-
view of tions for connecting said cylindrical portion
Ebbs and skirt portion, and wrist pin bearings in
 said webs.

Per C 2. A piston comprising a cylindrical ring
Per B portion and a split cylindrical skirt portion
Insert C² forming a guide for the piston C², said por-
Per A tions being separated by a continuous annu-
Cls 1 lar slot passing completely therethrough, webs
 for connecting said skirt and ring portion,
 located within the inner diameter thereof, be-
Per E ing attached to the skirt only at their oppo-
 site vertical edges and to the ring portion only
 at the top, and wrist pin bearings formed integral with
 said webs.

3 1E. A piston comprising a head having a cylin-
 drical ring portion depending therefrom and a skirt
 portion arranged beneath said ring portion and sepa-
 rated therefrom by a continuous annular
Insert I¹ groove, (1) I¹ webs on diametrically opposite
 sides of the piston, extending inward from
 said cylindrical portion and vertically down-
Per I ward, the opposite edges of said webs being
Per E connected to the segments of said segmental
 portions of the skirt, extending between said
 webs, and said skirt having an annular portion below
 said segmental portions disconnected from the lower
 ends of said web.

4 23. A piston comprising a head having a depend-
 ing cylindrical ring portion of relatively large clearance
 with respect to the diameter of the cylinder, and a skirt
 portion below said ring portion closely fitting said cyl-

434467-6

8447

inder and separated from the ring portion by a continu-
 ous annular groove, webs on diametrically opposite sides
 of said piston extending inward from said cylindrical

portion and downward parallel to each other, the opposite vertical edges of said webs being connected to segmental portions of the skirt extending therebetween, said skirt having an annular portion below said segmental portions webs disconnected from the lower ends of said webs and there being also provided a slit completely through the skirt from the lower to the upper end thereof, and wrist pin bearings carried by said webs. (Cl. 3-5)

5. A piston comprising a head portion, a cylindrical ring portion depending therefrom and a skirt portion arranged below said ring portion and separated therefrom by a continuous annular groove, said cylindrical ring portion being reduced in diameter below the lowermost ring to provide a large clearance between the same and the cylinder, and webs connecting said cylindrical portion and skirt portion also carrying the wrist pin bearings.

434467-7

8448

In testimony whereof I affix my signature.

HOWARD E. MAYNARD.

OATH

State of Michigan, County of Wayne, ss:

HOWARD E. MAYNARD, the above named petitioner, being duly sworn, deposes and says that he is a citizen of the United States of America, and resident of Detroit, Wayne County, Michigan; that he verily believes himself to be the original, first and sole inventor of the improvement in Pistons, described and claimed in the annexed specifications; that he does not know and does not believe that the same was ever known or used before his invention or discovery thereof, or patented or described in any printed publication in any country before his invention or discovery thereof, or more than two years prior to this application, or in public use or on sale in the United States for more than two years prior to this application; that said invention has not been patented in any Country foreign to the United States on an application filed by him or his legal representatives or assigns more than twelve months prior to this application;

and that no application for patent on said improvement has been filed by him or his representatives or assigns in any country foreign to the United States.

HOWARD E. MAYNARD.

Subscribed and sworn to before me this 22nd of December, 1920.

JAMES P. BARRY,

(Notarial Seal)

*Notary Public in and for Wayne
County, Michigan.*

My Commission expires October 2/1921.

434467—8

(Patent Office Apr 9-1921 Mail Room)

2—260

Div. 12 Room 322

Paper No. 2

Address only

"The Commissioner of Patents,
Washington, D. C.,"
and not any official by name.

All communications respecting this application should give the serial number, date of filing, title of invention, and name of the applicant.

DEPARTMENT OF THE INTERIOR

Ch-D

UNITED STATES PATENT OFFICE

Washington Apr. 9, 1921

Whittemore, Hulbert & Whittemore,
Penobscot Bldg.,
Detroit, Mich.

Please find below a communication from the Examiner in charge of the application of Howard E. Maynard, Filed Jan. 3, 1921, Serial No. 434,467 Pistons

THOMAS E. ROBERTSON,

Commissioner of Patents.

Claims 1 and 5 are rejected on

Spillman *et al.*, 1,2092,870, Apr. 14, 1914 (74-108)

Claim 2 is rejected on

Ricardo, 1,294,833, Feb. 18, 1919 (74-108)

The remaining claims appear allowable as at the present advised.

P. P. PIERCE,
Examiner.

V.I.C.

434467—9

(Mail Room Sep 12 1921 U. S. Patent Office)

A

Division 12, Paper No. 3
Sep 13 1921
U. S. Patent Office

IN THE UNITED STATES PATENT OFFICE

Div. 12, Room 322,
Howard E. Maynard,
Piston,
Filed Jan. 3, 1921,
Ser. No. 434,467.

Detroit, Mich., August 31, 1921.

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

In the matter of the above entitled interference and with reference to Office Letter of April 9, 1921, amendment is hereby made as follows:

Claim 1, line 2, before "skirt" insert —split—.

Claim 2, line 2, before "skirt" insert —split cylindrical—.

REMARKS

Claim 1, as now amended, brings out applicant's skirt portion as split as distinguished from the Spillman construction. As this feature of applicant's device provides for taking care of the contraction and expansion of the piston, claim 1 is now believed to clearly and patently differentiate from the reference. As this claim 5 was rejected on this same reference, the Examiner's attention is directed to the fact that this claim recites said cylindrical rim portion being reduced in diameter below the lowermost ring to provide a large clearance between

434467—10

the same and the cylinder. The Spillman *et al.* construction is entirely lacking in this respect and as this

clearance operates as a further safe-guard, being sufficient to prevent the bridging of the oil thereacross another and more favorable reconsideration of this claim is earnestly solicited.

Claim 2, as now amended, describes applicant's skirt portion as split and cylindrical and in this respect is believed to clearly avoid Ricardo whose corresponding portion is not cylindrical but is formed by the segments E. In view of the foregoing remarks and in the absence of more pertinent art an early allowance of the claims as now submitted, is earnestly solicited.

Respectfully submitted,

HOWARD E. MAYNARD,

By WHITTEMORE, HULBERT & WHITTEMORE,
Attorneys.

ADP/LS

434467-11

(Patent Office Jan 9 1922 Mailed)

2-260

Div. 12 Room 322

Paper No. 4

Address only

"The Commissioner of Patents,
Washington, D. C.,"
and not any official by name.

All communications respecting this application should give the serial number, date of filing, title of invention, and name of the applicant.

DEPARTMENT OF THE INTERIOR

UNITED STATES PATENT OFFICE

Ch-D

Washington Jan. 9, 1922

Whittemore, Hulbert, & Whittemore,
Penobscot Bldg.,
Detroit, Mich.

Please find below a communication from the Examiner in charge of the application of Howard E. Maynard, Filed Jan. 3, 1921, Serial No. 434,467 Pistons

THOMAS E. ROBERTSON,

Commissioner of Patents.

Responsive to the amendment of Sept. 12, 1922.

Claims 1 and 2 are again rejected on Ricardo, of record. The only difference between applicant's structure and that of Ricardo appears to be in the size of the gap between the skirt sections.

Claim 5 is rejected on Spillman *et al.*, of record in view of either

Howe, 908,569, Jan. 5, 1909 (74-109-4) or

Lowther, 1,298,234, Mar. 25, 1919 (74-108-2).

The remaining claims are allowed.

P. P. PIERCE,

Examiner.

V.I.C.

434467—12

(Mail Room Feb 2 1922 U. S. Patent Office)

Division 12, Paper No. 5

Feb 3 1922

U. S. Patent Office

IN THE UNITED STATES PATENT OFFICE

Div. 12, Room 322,
HOWARD E. MAYNARD,
Piston,
Filed January 3, 1921,
Serial No. 434,467.

Detroit, Michigan, January 23, 1922.

HON. COMMISSIONER OF PATENTS,
Washington, D. C.

B

Sir:

In the matter of the above entitled application and with reference to Office Letter of January 9, 1922, amendment is hereby made as follows:

Claim 1, line 2, before "split" insert —*cylindrical*—, and after "portion" add —*forming a guide for the piston*—

Claim 2, line 2, after "split" add —*cylindrical*—, and after "portion" add —*forming a guide for the piston*—

Chenard
view of
Hives (Br.)

Cancel claim 5 and add the following claims:

Insert C ³ B' Per C Per E Per D	5. A piston comprising a cylindrical ring portion C ³ and a guiding skirt portion C ³ provided with a slot extending longitudinally across the face thereof and at an slight angle to the vertical center line of the piston, and a wrist pin bearing integrally connected to said skirt portion. 6. A piston comprising a cylindrical portion adapted to engage the walls of a cylinder and provided with a slot extending longitudinally thereof and at an angle to the vertical center line of the piston, and a wrist pin bearing connected to said cylindrical portion.
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434467—13

REMARKS

Claims 1 and 2 as amended now bring out applicant's split skirt portion as cylindrical and as forming a guide for the piston. There is clearly a distinction between forming a guiding skirt portion of perforated segments such as Ricardo shows, and in making the same cylindrical and split as applicant does. Ricardo's idea was to make the piston as light as possible and to this end, he uses two separate perforated segments or members. Clearly this reference would not teach applicant's novel idea above referred to. Claim 5 has been cancelled and new claims 5 and 6 substituted therefor. The Examiner's attention is particularly called to the subject matter of these added claims, which it is believed is of an entirely novel and patentable nature in piston construction. The novel feature of applicant's invention as brought out in these claims, consists in the forming of a slot extending longitudinally in a guiding skirt portion of a piston and at an angle to the vertical center line of the piston. The purpose of the slot, of course, is to provide for expansion and contraction and by forming it at an angle to the center line of the piston, applicant avoids wearing a narrow depression in the walls of the cylinder for the reason that in the reciprocation of the piston, this slot will present, with reference to the walls of the cylinder, a relatively broad surface. On the other

hand, if the slot were vertical, reciprocation of the piston would cause the wearing of a narrow groove in the walls of the cylinder. For the foregoing reason, the claims now presented are believed to be directed to clear-

434467-14

ly patentable subject matter and early formal allowance of the case is earnestly solicited.

Respectfully submitted,

HOWARD E. MAYNARD,

By: WHITTEMORE, HULBERT & WHITTEMORE,

ADP:G

Attorneys.

434467-15

(Patent Office May 11, 1922 Mailed)

2-260

Div. 12 Room 322.

Paper No. 6

Address only

"The Commissioner of Patents,
Washington, D. C.,"
and not any official by name.

All communications respecting this application should give the serial number, date of filing, title of invention, and name of the applicant.

Ch-D

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Washington

May 11, 1922

Whittemore, Hulbert & Whittemore,
Penobscot Bldg.,
Detroit, Mich.

Please find below a communication from the Examiner in charge of the application of Howard E. Maynard, Filed Jan. 3, 1921, Serial No. 434,467 PISTONS.

THOMAS E. ROBERTSON,

Commissioner of Patents.

Responsive to the amendment of Feb. 2, 1922.

Claims 1 and 2 are again rejected upon Ricardo, of record. Broadly speaking, Ricardo shows a cylindrical split skirt portion for the purpose of guiding the piston in the cylinder. The mere fact that applicant forms his guiding sections to extend over a larger area of the cylinder by reason of the fact that the gap between said sections is narrower than that shown by Ricardo would not involve invention as such a difference is one of degree only.

Claims 5 and 6 are rejected on

Spillman, 1,325,176, Dec. 16, 1919 (74-108-A).

The remaining claims stand allowed.

P. P. PIERCE,

Examiner.

V.I.C.

434467-16

(Mail Room May 29 1922 U. S. Patent Office)

Division 12, Paper No. 7

May 31 1922

U. S. Patent Office

IN THE UNITED STATES PATENT OFFICE

Div. 12, Room 322,
Howard E. Maynard,
Pistons,
Filed Jan. 3, 1921,
Ser. No. 434,467.

Detroit, Michigan, May 25, 1922.

C Hon. Commissioner of Patents,
Washington, D. C.

Sir:—

In the matter of the above entitled application and with reference to Office Letter of May 11, 1922, amendment is hereby made as follows:—

per E	Claim 1, line 2 before —skirt— cancel
C ¹	“split” and after —piston— insert “and cut away to form a longitudinally extending slit therein.”
C ²	Claim 2, line 2, before —cylindrical— cancel “split” and after —piston— add “and cut away to form a longitudinally extending slit therein.”

Claim 5, line 2, after —portion— insert

O' "separated from each other by a continuous
per E circumferential groove, said skirt being" and
same line, change —slot— to "slit"; line 3,
before —thereof— insert "across the face" and change
—an— to "a slight."

Cancel claim 6 and substitute therefor:—

6. A piston comprising a cylindrical ring
Ols 5 portion and a substantially cylindrical skirt
C' portion forming a guide for the piston, said
per E portions being separated from each other by a
continuous circumferential groove and said
skirt portion being provided with a narrow slit extend-

434467—17

ing across one side thereof and at a slight angle to
the vertical center line of the piston and
per D integral web portions for connecting said cy-
lindrical portions.

REMARKS

Claims 1 and 2 respectively have been amended to bring out applicant's cylindrical skirt portion as cut away to form a longitudinal slit therein. It is believed these claims now recite subject matter of a patentable nature differentiating from Ricardo of record, inasmuch as his disclosure would not suggest the forming of a cylindrical skirt portion and cutting the same away to form a longitudinally extending slit therein. The advantage of this feature over the disclosure of the reference is that applicant's skirt portion has a much greater circumferential contact with the walls of the cylinder and consequently practically eliminates any side slapping of the cylinder and at the same time this slit provides for contraction and expansion of said skirt portion. A further advantage in having the greater contacting surface with the cylinder walls is that the skirt will tend to wipe the greater amount of oil therefrom and thus lessen chance of oil passing up past the rings. For these reasons the claims as now presented are believed to be clearly allowable.

Claim 5 has been amended to bring out the cylindrical ring portion and guiding skirt portion as separated from each other by a continuous circumferential

434467—18

groove thus distinguishing from Spillman's disclosure wherein the groove extends only part way around the piston. This claim also brings out that applicant's slit extends across the face at a slight angle to the vertical center line of the piston. The advantage over Spillman's disclosure wherein the slots extend halfway around the piston on opposite sides thereof is that applicant's idea makes for a much stronger piston which will resist the stress thereon much better than the flimsy structure of the reference. Furthermore applicant's device is not only more durable but also provides for contraction and expansion equally as well by this slit which extends only at a slight angle to the vertical center line of the piston. New claim 6 is directed to similar subject matter and in view of the preceding remarks the same is believed to patentably differentiate from the reference.

A more favorable reconsideration and an early formal allowance of the claims now presented is respectfully solicited.

Respectfully submitted,

HOWARD E. MAYNARD,

By WHITTEMORE, HULBERT & WHITTEMORE,

Attorneys.

434467-19

ADP:AR

(Patent Office Jul 13 1922 Mailed)

2-260

Div. 12 Room 322

Paper No. 8

Address only

"The Commissioner of Patents,
Washington, D. C.,"

and not any official by name.

All communications respecting this application should give the serial number, date of filing, title of invention, and name of the applicant.

Ch-D

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Washington — July 13, 1922

Whittemore, Hulbert & Whittemore,
Penobscot Bldg.,
Detroit, Michigan.

Please find below a communication from the EXAM-
INER in charge of the application of Howard E. Maynard,
Filed Jan. 3, 1921, Serial No. 434,717 PISTONS.

THOMAS E. ROBERTSON,
Commissioner of Patents.

Amended May 29, 1922.

Claims 1 and 2 are again rejected upon Ricardo, of
record and for the reasons therein stated.

Claims 5 and 6 are rejected upon

Ebbs, 700,309, May 20, 1902 (74-108-A),
in view of Spillman, of record.

In connection with claims 1 and 2 applicant's atten-
tion is invited to the fact that the structure shown by
Ebbs consists of a piston having a cylindrical ring por-
tion and a cylindrical split skirt portion, said portions
being separated by continuous circumferential grooves,
and said portions being connected together and wrist
pin bearings connected to the skirt portions by webs sub-
stantially as set forth by applicant.

The remaining claims stand allowed.

P. P. PIERCE,

V.I.C.

Examiner.

434467—20

(Mail Room Aug 16 1922 U. S. Patent Office)

Division 12, Paper No. 9
Aug 17 1922
U. S. Patent Office.
Amendment D

IN THE UNITED STATES PATENT OFFICE

Amendment D

Div. 12, Room 322,
HOWARD E. MAYNARD,
Pistons,
Filed Jan. 3, 1921,
Ser. No. 434,467.

Detroit, Michigan, Aug. 14, 1922.

HON. COMMISSIONER OF PATENTS,
Washington, D: C.

Sir:

In the matter of the above entitled application and with reference to Office Letter of July 13, 1922, amendment is hereby made as follows:

Claim 5, line 5, after —bearing— insert "*integrally*".

Claim 6, line 8, before —web— insert "*integral*".

REMARKS:

The Examiner's ground for rejecting claims 1 and 2 upon Ricardo, is, that broadly speaking he shows a cylindrical split skirt portion for the purpose of guiding the piston in the cylinder. The Examiner further states, that the forming of applicant's guiding sections to extend over a larger area of the cylinder, by reason of the fact that the gap between said sections is narrower than that shown by Ricardo, would not involve invention as such

434467—21

difference is one of degree only. Applicant respectfully suggests that even broadly considering Ricardo's segments as a split skirt portion although they occupy only one half of the inner circumference of the cylinder, this reference entirely fails to meet the recitation in claims 1 and 2, as now presented, namely, a cylindrical skirt portion forming a guide for the piston and cut away to form a longitudinally extending slit therein. There is a decided advantage in applicant's skirt portion construe-

tion over that of Ricardo's firstly in that his greater, circumferential contact with the walls of the cylinder eliminates any chance of side slapping of the piston and secondly in that his skirt wipes the greater amount of oil from the cylinder wall thus minimizing the chance for oil to pass the rings. Ricardo's segments engaging substantially only one-half of the surface that applicant's skirt does is devoid of these advantages and certainly would not teach the novel idea of cutting a cylindrical skirt away to form a longitudinally extending slit therein. A more favorable reconsideration and allowance of claims 1 and 2, as now presented, is therefore respectfully requested.

Claim 5 has been amended to recite applicant's wrist pin bearing as integrally connected to his skirt portion obviously differentiating from the Ebbs' disclosure. There is no mention made of the wrist pin bearing in the Spillman disclosure and especially in view of figure 2 it would appear that the bearing shown is not integral.

434467—22

Claim 6 has also been amended to bring out applicant's cylindrical ring and skirt portions as connected by integral web portions as distinguished from Ebbs' construction wherein the rim portion is secured to the skirt portion by a detachable member d. Claim 6 which also recites applicant's slit extending across the face of the piston at a slight angle to the vertical center line of the piston is believed to recite subject matter patentably differentiating from the Spillman disclosure. Spillman's slits which extend half way around his piston on opposite sides thereof necessitates spot welding of the pointed end of the tongues and then grinding of the same down to a true cylinder. (See lines 4 to 15 inclusive page 2). Applicant's novel idea avoids this requirement and furthermore makes for a stronger and more durable piston at the same time possessing the desired advantages. It is believed the claims, as now submitted, are therefore drawn to patentable subject matter and an early formal allowance of the case is earnestly solicited.

Respectfully submitted,

HOWARD E. MAYNARD,

By: WHITTEMORE, HULBERT & WHITTEMORE,
Attorneys.

ADP:AR

434467—23

(Patent Office Oct 5-1922 Mailed)

2-260

Div. 12 Room 322

Paper No. 10

Address only

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Washington, D. C.,"
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All communications respecting this
application should give the serial number,
date of filing, title of invention, and
name of the applicant.

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Ch-D

Washington Oct. 5, 1922

Whittemore, Hulbert & Whittemore,
Penobscot Bldg.,
Detroit, Mich.

Please find below a communication from the Ex-
aminer in charge of the application of Howard E.
Maynard, Filed Jan. 3, 1921, Serial No. 434,467 Pistons.

THOMAS E. ROBERTSON,
Commissioner of Patents.

Responsive to the amendment of Aug. 16, 1922.

Claims 1 and 2 are rejected as setting forth an un-
patentable combination over Ebbs in view of Ricardo,
both of record.

Relative to the above claims, applicant's attention is
invited to the following considerations: the Ebbs struc-
ture discloses all of the basic structural features and
combinations set forth by these claims, namely, in that
it shows a piston comprising cylindrical ring and skirt
portions, separated from each other by a continuous an-
nular slot passing completely therethru, said skirt "being
longitudinally slit and "web" portions" connecting the
head and skirt and the wrist pin bearing being integral
with the said "web". The additional limitations of "the
webs being attached to the skirt only at their opposite
vertical edges" and the statements to the effect that
there are two wrist pin bearings, are shown to be old in
the art by Ricardo, who includes these features in the
same combination of features.

It is further to be noted that applicant's contribution to the art resides in the provision of an annular portion at the lower part of the piston skirt below the ex-

434467—24

434,467—2

posed gudgeon pin bosses. That is, in casting the guide slippers of Ricardo continuous below the webs and wrist pin bosses and then splitting the skirt on the thrust side. This feature forms the basis of patentability in the allowed claims, which are thought to completely cover applicant's invention.

Claims 5 and 6 are rejected on the

French patent to Chenard *et al.*, 468,595, Apr. 28, 1914 (74-108) (1 sheet),

in view of either

Schoengarth, 1,174,092, Mar. 7, 1916 (74-108-A),

or the

British patent to Hives *et al.*, 140,988, Apr. 8, 1920 (74-108-A) (1 sheet).

There being no invention in splitting the piston skirt shown by the French patent, *supra*, in the manner taught by the last named patents.

Upon viewing the allowed claims it is noted that "the segments of said skirt" referred to in claim 3 has no antecedent. This phrase is also held to be inaccurate, unwarranted and not applicable to the device disclosed and described by applicant. Applicant's piston skirt is an integral unitary structure and not divided into segments.

The above observations are equally applicable to the similar terms occurring in claim 4. In order that the prosecution of the case may be expedited without unnecessary delay, the examiner suggests that "segments of", in line 8, claim 3, should be canceled. Also in claim 4, lines 10 and 11 "segmental portions of", and "extending therebetween," respectively should be canceled. Same claim, line 12, "segmental portions," should be canceled and *webs* inserted in lieu thereof.

P. P. PIERCE,

Examiner.

V.I.C.

434467—25

(Mail Room Mar 19 1923 U. S. Patent Office)

Division 12, Paper No. 11

Mar 20 1928

U. S. Patent Office

IN THE UNITED STATES PATENT OFFICE

Div. 12, Room 322,
Howard E. Maynard,
Pistons,
Filed Jan. 3, 1921,
Serial No. 434,467.

Detroit, Mich., March 16, 1923.

E

Hon. Commissioner of Patents,
Washington, D. C.

Sir:—

In the matter of the above entitled application and with reference to Office Letter of October 5, 1922, amendment is hereby made as follows:—

Cancel claims 1 and 2.

Claim 3, line 8, cancel "segments of."

Claim 4, line 10, cancel "segmental portions of." Lines 10 and 11, cancel "extending therebetween." Line 12, cancel "segmental portions" and substitute —webs—.

Cancel claims 5 and 6.

Adjust the ordinals of the remaining claims and add:—

3. A piston comprising a head, a cylindrical skirt beneath said head and having recesses in diametrically opposite sides thereof, webs extending downwardly from said head upon diametrically opposite sides thereof and having the opposite side edges thereof connected to the side edges of the recesses in said skirt, whereby openings are provided

434467—26

8450

between the lower ends of said webs and said skirt, and wrist pin bearings carried by said webs.

4. 3 A piston comprising a head, a cylindrical skirt beneath said head having recesses in diametrically opposite sides thereof, parallel webs extending downwardly

from said head and having the opposite side edges thereof connected to the side edges of the recesses in said skirt, whereby separating openings are being provided between the lower ends of said webs and said skirt and between the upper edges of said skirt and said head, and wrist pin bearings carried by said webs.

5. A piston comprising a head, a cylindrical skirt beneath said head having recesses in diametrically opposite sides thereof, webs extending downwardly from said head and having the opposite side edges thereof connected to the side edges of the recesses in said skirt, whereby openings are provided between the lower ends of said webs and said skirt, and wrist pin bearings formed integral with said webs, one side of said skirt between the points of attachment of said webs thereto being slit longitudinally.

6. 4 A piston comprising a head having a depending cylindrical portion provided with annular grooves, rings engaging said grooves, the cylindrical portion below the lowermost ring being cut away, a cylindrical skirt beneath the cylindrical portion of said head and having recesses in diametrically opposite sides thereof, webs extending downwardly from said head and having the opposite side edges thereof connected to the side edges of the recesses in said skirt, whereby separating openings are being provided between the lower ends of said webs and said skirt, and wrist pin bearings carried by said webs, one side of said

434467-27

8451

skirt between the points of attachment of said webs thereto being slit longitudinally.

7. 5 A piston comprising a head, a cylindrical skirt beneath said head, parallel webs extending downwardly from said head and connected to said skirt whereby separating recesses are being provided between the lower ends of said webs and said skirt and between the upper ends of said skirt and said head, one side of said skirt between the points of attachment of said webs thereto being slitted longitudinally, and wrist pin bearings carried by said webs. (X)

REMARKS

Claims 1 and 3 (former claims 3 and 4) have been amended in accordance with the suggestions of the Examiner.

The references of record fail to show a cylindrical skirt beneath a piston head having recesses in diametrically opposite sides thereof together with webs extending downwardly from the piston head and having the opposite side edges thereof connected to the side edges of the recesses in said skirt, whereby openings are provided between the lower ends of said webs and said skirt as well as between the upper edges of said skirt and said head. This construction is defined in the new claims submitted above. The references of record also fail to show a head having a depending cylindrical portion provided with annular grooves adapted to receive the piston rings, said cylindrical portion below the lowermost ring being cut away.

434467-28

8452

In the absence of more pertinent art, an early allowance is most respectfully requested.

Respectfully submitted,

HOWARD E. MAYNARD,

By WHITEMORE, HULBERT & WHITEMORE,
Attorneys.

ARW/ej

434467-29

(Patent Office Apr 5 1923 Mailed).

2-260

Div. 12 Room 322

Paper No. 12

Address only

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and not any official by name.

All communications respecting this application should give the serial number, date of filing, title of invention, and name of the applicant.

Ch-D

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Washington

April 5, 1923

Copy sent applicant.

Whittemore, Hulbert & Whittemore,
Penobscot Bldg.,
Detroit, Mich.Please find below a communication from the EXAM-
INER in charge of the application of Howard E. Maynard,
Filed Jan. 3, 1921, Serial No. 434,467 Pistons.THOMAS E. ROBERTSON,
Commissioner of Patents.

Amended March 19, 1923.

The following claims are suggested to the applicant
for the purpose of interference:

—A piston comprising a head, a skirt separated at its periphery from the head, and pin bosses connected to the head and to the upper and lower parts of the skirt, said skirt being split longitudinally at one side between its connections to said bosses.

• A piston comprising a head portion, a skirt portion, two separated pin bosses, connecting flanges in the zone of the bosses and extending from the bosses to the skirt on both sides of the bosses, connecting means from each of the bosses to the head portion, the skirt portion being entirely separated from the head portion except through the boss connections, and the skirt portion being split longitudinally of the piston to permit free expansion and contraction.

A piston comprising a head portion, a skirt portion, two separated pin bosses, connecting flanges in the zone of the bosses and extending from the bosses to the skirt on both sides of the bosses, connecting means from each of the bosses to the head portion, the skirt portion being entirely separated from the head portion except through the boss connections, and the skirt portion being split longitudinally of the piston to permit free expansion and contraction and the skirt portion being cut away adjacent the outer ends of the piston bosses.

A piston having a head portion with a ring groove therein, a skirt portion having its cylinder engaging part separated from the head portion, separated pin bosses having integral flanges connecting them with the skirt on

both sides of the bosses and with the head portion respectively, said skirt being split from top to bottom on one side only of the pin bosses to permit free expansion and

434467—30

434467—2

contraction of the skirt portion.

A piston for internal combustion engines comprising in combination a head portion having an end wall and a side wall, a guide portion having on one side a cylinder-engaging part disposed to take the angular thrust of a connecting rod during one stroke of the piston, said cylinder-engaging part being separated at its upper end from said side wall by an air gap and being split longitudinally to accommodate expansion incident to the heating of the piston a pair of separated pin bosses, and walls integrally uniting said bosses, the guide portion and the head portion.

A piston comprising a head and body, internal yielding ribs supporting the head and body, and means on said ribs adapted to form engaging connection with operable parts for said piston.

A piston open at one end and having a packing ring supporting portion and a cylinder engaging portion, said cylinder engaging portion having a slot which is cut through the thickness of its peripheral wall and extending from the open end of the piston to said ring supporting portion, a pair of wrist pin bearings depended from said ring supporting portion separated from said cylinder engaging portion, and tying means extending from each of said wrist pin bearings each being co-operably connected at their opposite ends to said cylinder engaging portion.

A piston having a head with top and side walls in combination with a guide structure connected thereto and comprising diametrically opposite cylinder-engaging parts formed with air spaces between their upper edges and the bottom edge of the side wall of the head, wrist pin bosses between the cylinder-engaging parts, and means joining said bosses and cylinder-engaging parts together, the said joining means being resiliently yieldable and arranged not to engage the cylinder.

A piston closed at one end and open at its opposite end, said piston having an annular cutting formed through the thickness of its peripheral wall thereby providing a separated sleeve-like skirt which is approximately cylinder bearing in its entirety, a pair of wrist pin bearings depended from said piston end and being

free from engagement with said skirt, supporting means extending from each of said bearings to said skirt, said skirt being provided with a longitudinal slot cut through the thickness of its wall and extending from the open end thereof to said annular cutting.

In a piston for an internal combustion engine, the combination of a head having ring grooves therein, a plurality of webs integral with said head and having diametrically opposite piston pin bosses therein, a skirt integral with said webs relieved adjacent said webs and separated from the head by circumferential slots and provided with a longitudinal slot connecting the lower end of the piston with one of the circumferential slots.

In a piston for an internal combustion engine the combination of a head comprising a head disc and a peripheral flange having ring grooves therein, a pair of

434467—31

434,467—3

cordal webs, substantially rectangular in shape and located opposite each other in the piston, connected integrally at their upper edges to the peripheral flange of the piston, diametrically opposite wrist pin bosses, one in each of said webs, a skirt for said piston integrally connected to each of the side edges of the webs and cut away so as to expose each of the rectangular webs and the piston pin bosses from the outside of the piston, said piston being provided with circumferential slots between the skirt and head and with a longitudinal slot extending from one of the circumferential slots to the open end of the piston.

Failure to make the above claims within thirty days from the date of mailing of this letter will be taken as a disclaimer of the subject matter covered thereby.

R. M. WEAVER,

V.I.C.

Acting Examiner, Div. 12.

434467—32

(Mail Room Apr 23 1923 U. S. Patent Office)

Division 12, Paper No. 13.

Apr 24 1923

U. S. Patent Office

IN THE UNITED STATES PATENT OFFICE

Div. 12, Room 322,
Howard E. Maynard,
Pistons,
Filed Jan. 3, 1921,
Serial No. 434,467.

Detroit, Mich., April 21-1923.

Hon. Commissioner of Patents,
Washington, D. C.

F Sir:—

In the matter of the above entitled application and with reference to Office Letter of April 5, 1923, amendment is hereby made as follows:—

Add the following claims:—

Per H 8. A piston comprising a head, a skirt separated at its periphery from the head, and pin bosses connected to the head and to the upper and lower parts of the skirt, said skirt being split longitudinally at one side between its connections to said bosses.

F 9. A piston comprising a head portion, a skirt portion, two separated pin bosses, connecting flanges in the zone of the bosses and extending from the bosses to the skirt on both sides of the bosses, connecting means from each of the bosses to the head portion, the skirt portion being entirely separated from the head portion except through the boss connections, and the skirt portion being split longitudinally of the piston to permit free expansion and contraction.

10. A piston comprising a head portion, a skirt portion, two separated pin bosses, connecting flanges in the

434467—33

zone of the bosses and extending from the bosses to the skirt on both sides of the bosses, connecting means from each of the bosses to the head portion, the skirt portion being entirely separated from the head portion except

through the boss connections, and the skirt portion being split longitudinally of the piston to permit free expansion and contraction and the skirt portion being cut away adjacent the outer ends of the piston bosses.

11. A piston having a head portion with a ring groove therein, a skirt portion having its cylinder engaging part separated from the head portion, separated pin bosses having integral flanges connecting them with the skirt on both sides of the bosses and with the head portion respectively, said skirt being split from top to bottom on one side only of the pin bosses to permit free expansion and contraction of the skirt portion.

12. A piston for internal combustion engines comprising in combination a head portion having an end wall and a side wall, a guide portion having on one side a cylinder-engaging part disposed to take the angular thrust of a connecting rod during one stroke of the piston, said cylinder-engaging part being separated at its upper end from said side wall by an air gap and being split longitudinally to accommodate expansion incident to the heating of the piston a pair of separated pin bosses, and walls integrally uniting said bosses, the guide portion and the head portion.

13. A piston comprising a head and body, internal yielding ribs supporting the head and body, and means on said ribs adapted to form engaging connection with operable parts for said piston.

434467-34

14. A piston open at one end and having a packing ring supporting portion and a cylinder engaging portion, said cylinder engaging portion having a slot which is cut through the thickness of its peripheral wall and extending from the open end of the piston to said ring supporting portion, a pair of wrist pin bearings depending from said ring supporting portion and separated from said cylinder engaging portion, and tying means extending from each of said wrist pin bearings each being cooperably connected at their opposite ends to said cylinder engaging portion.

15. A piston having a head with top and side walls in combination with a guide structure connected thereto and comprising diametrically opposite cylinder-engaging parts formed with air spaces between their upper edges and the bottom edge of the side wall of the head, wrist pin bosses between the cylinder-engaging parts, and means joining said bosses and cylinder-engaging

parts together, the said joining means being resiliently yieldable and arranged not to engage the cylinder.

16. A piston closed at one end and open at its opposite end, said piston having an annular cutting formed through the thickness of its peripheral wall thereby providing a separated sleeve-like skirt which is approximately cylinder bearing in its entirety, a pair of wrist pin bearings depended from said piston end and being free from engagement with said skirt, supporting means extending from each of said bearings to said skirt, said skirt being provided with a longitudinal slot cut through the thickness of its wall and extending from the open end thereof to said annular cutting.

434467—35

17. In a piston for an internal combustion engine, the combination of a head having ring grooves therein, a plurality of webs integral with said head and having diametrically opposite piston bosses therein, a skirt integral with said webs relieved adjacent said webs and separated from the head by circumferential slots and provided with a longitudinal slot connecting the lower end of the piston with one of the circumferential slots.

18. In a piston for an internal combustion engine the combination of a head comprising a head disc and a peripheral flange having ring grooves therein, a pair of cordal webs, substantially rectangular in shape and located opposite each other in the piston, connected integrally at their upper edges to the peripheral flange of the piston, diametrically opposite wrist pin bosses, one in each of said webs, a skirt for said piston integrally connected to each of the side edges of the webs and cut away so as to expose each of the rectangular webs and the piston pin bosses from the outside of the piston, said piston being provided with circumferential slots between the skirt and head and with a longitudinal slot extending from one of the circumferential slots to the open end of the piston.

Insert G'

REMARKS

The above claims have been added for the purpose of interference.

Respectfully submitted,

HOWARD E. MAYNARD,

By WHITTEMORE, HULBERT & WHITTEMORE,

ARW/ej

Attorneys.

434467—36

2-079

INTERFERENCE

"A" (1)

Interference No. 49569

Paper No. 14

Name, Howard E. Maynard,

Serial No. 434,467

Title, Pistons

Filed, Jan. 3, 1921

Interference with R. E. Day; G. A. Taylor; S. D. Hartog;
E. C. Long; Frank Jardine and E. J. Gulick.

DECISIONS OF

Primary Examiner,
Ex'r of Interferences, **Adverse**
Board,
Commissioner,Dated,
Dated, June 2/24.
Dated,
Dated,

REMARKS:

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.....

This should be placed in each application or patent involved in interference in addition to the interference letters by Primary Examiner.

434467-37

(U. S. Patent Office Jul 7 1923 Mailed)

Forwarded from 12 Div. to
Examiner of Interferences
June 15, 1923.

Paper No. 14 15

[INTERFERENCE.]

"A" (1)

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Washington, D. C.

Whittemore, Hulbert & Whittemore,
Penobscot Bldg.,
Detroit, Mich.

Please find below a copy of a communication from the Examiner concerning the application of Howard E. Maynard, Filed Jan. 3, 1921, Serial No. 434,467, Pistons.

Very respectfully,

THOMAS E. ROBERTSON,

Commissioner of Patents.

Room No. 322

Address only
The Commissioner of Patents
Washington, D. C.

49569

The case, above referred to, is adjudged to interfere with others, hereafter specified, and the question of priority will be determined in conformity with the Rules.

The statement demanded by Rule 110 must be sealed up and filed on or before Aug. 27, 1923, with the subject of the invention, and name of party filing it, indorsed on the envelope. The subject-matter involved in the interference is

Count.

1. A piston for internal combustion engines comprising in combination a head portion having an end wall and a side wall, a guide portion having on one side a cylinder-engaging part disposed to take the angular thrust of a connecting rod during one stroke of the piston, said cylinder-engaging part being separated at its upper end from said side wall by an air gap and being split longitudinally to accommodate expansion incident to the heating of the piston, a pair of separated pin bosses, and walls integrally uniting said bosses, the guide portion and the head portion.

The interference involves your application above identified and an application for Pistons, filed by Ray E. Day, of 3825 North 24th St., Tacoma, Wash., whose attorney is Clarence E. Mehlhope, of Marquette Bldg., Chicago, Ill.,

An application for Pistons, filed by George A. Taylor, of 164 Dana Avenue, Hyde Park, Mass., whose attorney is Macleod, Calver, Copeland and Dike, of Tremont Bldg., Boston, Mass.,

An application for Pistons, filed by Frank Jardine, of c/o The Aluminum Castings Co., Cleveland, Ohio, whose attorney is B. D. Watts, of 451 Lennox Bldg., East

434467—38

434,467—2

9th & Euclid Ave., Cleveland, Ohio, and whose assignee is the Aluminum Manufactures Inc., Cleveland, Ohio,

An application for Pistons, filed by Stephen D. Hartog, of 3219 Natural Bridge Ave., St. Louis, Missouri, whose attorney is Rippey and Kingsland, of The Rialto Bldg., St. Louis, Mo.,

An application for Internal Combustion Engine Pistons, filed by Elmer C. Long, of 1037 Main St., Quincy, Illinois, whose attorney is Herbert G. Fletcher, of 321 International Life Bldg., c/o Knight Bros., St. Louis, Mo., and

An application for Pistons, filed by Edward J. Gulick, of P. O. Box 553, Elkhart, Indiana, whose attorney is Milton Tibbetts, c/o Packard Motor Car Co., Detroit, Michigan, and whose assignee is the Cleveland Trust Company, of Cleveland, Ohio, a corporation of Ohio.

The relation of the count of the interference to the claims of the respective parties is as follows:

Count Day Gulick Hartog Jardine Long Maynard Taylor

1 14 15 30 15 10 12 13.

P. P. PIERCE,

Examiner, Div. 12.

V.I.C.

434467-39

2-079

INTERFERENCE.

"B" (2)

Interference No. 49570

Paper No. 16

Name, Howard E. Maynard

Serial No. 434,467

Title, Pistons

Filed, Jan. 3, 1921

Interference with R. E. Day; G. A. Taylor; E. C. Long;
F. Jardine, E. J. Gulick; and S. D. Hartog.

DECISIONS OF

Primary Examiner,
Ex'r of Interferences, Adverse
Board,
Commissioner,

Dated,
Dated, Apr. 8/24.
Dated,
Dated,

REMARKS:

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.....
This should be placed in each application or patent involved in interference in addition to the interference letters by Primary Examiner.

434467-40

(U. S. Patent Office Jul 7 1923 Mailed)

2-213

Forwarded from 12 Div. to
Examiner of Interferences.
June 15, 1923
Ch-D

Paper No. 17
[INTERFERENCE.]
"B" (2)

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Washington, D. C.

Whittemore, Hulbert & Whittemore,
Penobscot Bldg.,
Detroit, Michigan.

Please find below a copy of a communication from
the Examiner concerning the application of Howard E.
Maynard, Filed Jan. 3, 1921, Serial No. 434,467, PISTONS

Very respectfully,

THOMAS E. ROBERTSON,

Commissioner of Patents.

Room No. 322

Address only
The Commissioner of Patents
Washington, D. C.

49570

The case, above referred to, is adjudged to interfere
with others, hereafter specified, and the question of
priority will be determined in conformity with the Rules.

The statement demanded by Rule 110 must be sealed
up and filed on or before Aug 27, 1923, with the subject
of the invention, and name of party filing it, indorsed on
the envelope. The subject-matter involved in the inter-
ference is

Count.

1. A piston comprising a head and body, internal
yielding ribs supporting the head and body, and means
on said ribs adapted to form engaging connection with
operable parts for said piston.

This interference involves your application above
identified and an application for PISTONS, filed by Ray E.
Day, of 3825 North 24th St., Tacoma, Washington, whose
attorney is Clarence E. Mehlhope, of Marquette Bldg.,
Chicago, Illinois,

An application for Pistons, filed by George A. Taylor, of 164 Dana Ave., Hyde Park, Mass., whose attorney is Macleod, Calver, Copeland & Dike, of Tremont Bldg., Boston, Mass.,

An application for PISTON FOR AN INTERNAL COMBUSTION ENGINE, filed by Elmer C. Long, of 4834 Beaubien St., Detroit, Michigan, whose attorney is Herbert G. Fletcher, of 1111 International Life Bldg., St. Louis, Missouri,

434467—41

434,467—2

An application for PISTONS, filed by Frank Jardine, of c/o The Aluminum Castings Co., Cleveland, Ohio, whose attorney is B. D. Watts, of 451 Lennox Bldg., East 9th & Euclid Ave., Cleveland, Ohio, and whose assignee is the Aluminum Manufactures Inc., of Cleveland, Ohio,

An application for PISTONS, filed by Stephen D. Hartog, of 3219 Natural Bridge Ave., St. Louis, Missouri, whose attorney is Rippey & Kingsland, of The Rialto Bldg., St. Louis, Missouri, and

An application for PISTONS, filed by Edward J. Gulick, of P. O. Box 553, Elkhart, Indiana, whose attorney is Milton Tibbetts, of c/o Packard Motor Car Company, Detroit, Michigan, and whose assignee is The Cleveland Trust Company, of Cleveland, Ohio, a corporation of Ohio.

The relation of the count of the interference to the claims of the respective parties is as follows:

Count	Day	Gulick	Hartog	Jardine	Long	Maynard	Taylor
1	15	30	1	16	13	13	14.

P. P. PIERCE,

Examiner, Div. 12.

434467—42

V.I.C.

2-079

INTERFERENCE.

11011 (3)

Paper No. 18

Interference No. 49571

Name, Howard E. Maynard,

Serial No. 434,467

Title, PISTONS

Filed, Jan. 3, 1921

Interference with R. E. Day; G. A. Taylor; A. Spillman,
F. Jardine; E. C. Long; E. J. Gulick (Kelm added).

DECISIONS OF

Primary Examiner,
Ex'r of Interferences, Adverse
Board,
Commissioner,Dated,
Dated, June 2/24.
Dated,
Dated,

REMARKS:

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.....

This should be placed in each application or patent involved in interference in addition to the interference letters by Primary Examiner.

434467-43

(U. S. Patent Office Jul 7 1923 Mailed)

2-213

Forwarded from 12 Div. to
Examiner of Interferences.
June 15, 1923

Ch-D

Paper No. 19
[INTERFERENCE.]
11011 (3)DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Washington, D. C.,

Whittemore, Hulbert & Whittemore,
Penobscot Bldg.,
Detroit, Mich.Please find below a copy of a communication from
the Examiner concerning the application of Howard E.

Maynard, Filed Jan. 3, 1921, Serial No. 434,467, PISTONS.

Very respectfully,

THOMAS E. ROBERTSON,
Commissioner of Patents.

Room No. 322

Address only
The Commissioner of Patents
Washington, D. C.

49571

The case, above referred to, is adjudged to interfere with others, hereafter specified, and the question of priority will be determined in conformity with the Rules.

The statement demanded by Rule 110 must be sealed up and filed on or before Aug 27 1923, with the subject of the invention, and name of party filing it, indorsed on the envelope. The subject-matter involved in the interference is

Count.

1. A piston open at one end and having a packing ring supporting portion and a cylinder engaging portion, said cylinder engaging portion having a slot which is cut through the thickness of its peripheral wall and extending from the open end of the piston to said ring supporting portion, a pair of wrist pin bearings depended from said ring supporting portion and separated from said cylinder engaging portion, and tying means extending from each of said wrist pin bearings each being co-operably connected at their opposite ends to said cylinder engaging portion.

This interference involves your application above identified and an application for PISTONS, filed by Ray E. Day, of 3825 North 24th St., Tacoma, Wash., whose attorney is Clarence E. Mehlhope, of Marquette Bldg., Chicago, Ill.,

An application for PISTONS, filed by George A. Taylor, of 164 Dana Ave., Hyde Park, Mass., whose attorney is Macleod, Calver, Copeland & Dike, of Tremont Bldg., Boston, Mass.,

An application for ENGINE PISTONS, filed by Albert Spillman, of 261 Payne Ave., North Tonawanda, New York, whose attorney is Geyer & Popp, of 619 Brisbane Bldg., Buffalo, N. Y.,

434,467—2

An application for **Pistons**, filed by Frank Jardine, of c/o The Aluminum Castings Company, Cleveland, Ohio, whose attorney is B. D. Watts, of 451 Lennox Bldg., East 9th & Euclid Ave., Cleveland, Ohio, and whose assignee is the Aluminum Manufactures Inc., of Cleveland, Ohio;

An application for **Piston**, filed by Elmer C. Long, of 1037 Main St., Quincy, Illinois, whose attorney is Herbert G. Fletcher, of International Life Bldg., St. Louis, Missouri, and

An application for **Pistons**, filed by Edward J. Gulick, of P. O. Box 553, Elkhart, Indiana, whose attorney is Milton Tibbetts, of c/o Packard Motor Car Company, Detroit, Michigan, whose assignee is the Cleveland Trust Company, of Cleveland, Ohio, a corporation of Ohio.

The relation of the count of the interference to the claims of the respective parties is as follows:

Count	Day	Gulick	Jardine	Long	Maynard	Spillman	Taylor
1	16	31	17	1	14	13	15.

P. P. PIERCE,

V.I.C.

Examiner, Div. 12.

434467—45

2—079

INTERFERENCE.

Interference No. 49572

Name, Howard E. Maynard.

Serial No. 434,467

Title, **Pistons**

Filed, Jan. 3, 1921.

Interference with E. J. Gulick; E. C. Long; S. D. Hartog;
F. Jardine; A. Spillman and G. A. Taylor.

“D” (4)
Paper No. 20

DECISIONS OF

Primary Examiner,
Ex'r of Interferences, Adverse
Board,
Commissioner,

Dated,
Dated, Apr. 10/24
Dated,
Dated,

REMARKS:

.....

 This should be placed in each application or patent involved in interference in addition to the interference letters by Primary Examiner.

434467-46

(U. S. Patent Office Jul 7-1923 Mailed)

2-213

Forwarded from 12 Div. to
 Examiner of Interferences.
 June 15, 1923

Paper No. 21
 [INTERFERENCE.]
 "D" (4)

DEPARTMENT OF THE INTERIOR
 UNITED STATES PATENT OFFICE
 Washington, D. C.

Whittemore, Hulbert, & Whittemore,
 Penobscot Bldg.,
 Detroit, Michigan.

Please find below a copy of a communication from the Examiner concerning the application of HOWARD E. MAYNARD, Filed Jan. 3, 1921, Serial No. 434,467, Pistons.

Very respectfully,

THOMAS E. ROBERTSON,
 Commissioner of Patents.

Room No. 322

Address only
 The Commissioner of Patents
 Washington, D. C.

49572

The case, above referred to, is adjudged to interfere with others, hereafter specified, and the question of priority will be determined in conformity with the Rules.

The statement demanded by Rule 110 must be sealed up and filed on or before Aug. 27, 1923, with the subject of the invention, and name of party filing it, indorsed on the envelope. The subject-matter involved in the interference is

Count.

1. A piston having a head with top and side walls in combination with a guide structure connected there-

to and comprising diametrically opposite cylinder-engaging parts formed with air spaces between their upper edges and the bottom edge of the side wall of the head, wrist pin bosses between the cylinder-engaging parts, and means joining said bosses and cylinder-engaging parts together, the said joining means being resiliently yieldable and arranged not to engage the cylinder.

This interference involves your application above identified and an application for PISTONS, filed by George A. Taylor, of 164 Dana Ave., Hyde Park, Mass., whose attorney is Macleod, Calver, Copeland & Dike, of Tremont Bldg., Boston, Mass.,

An application for ENGINE PISTONS, filed by Albert Spillman, of 261 Payne Ave., North Tonawanda, N. Y., whose attorney is Geyer and Popp, of 619 Brisbane Bldg., Buffalo, N. Y.,

An application for PISTONS, filed by Frank Jardine, of c/o the Aluminum Castings Co., Cleveland, Ohio, whose attorney is B. D. Watts, of 451 Lennox Bldg., East 9th & Euclid Ave., Cleveland, Ohio, and whose assignee is the Aluminum Manufactures Inc., of Cleveland, Ohio,

434467—47

434,467—2

An application for PISTONS, filed by Stephen D. Hartog, of 3219 Natural Bridge Ave., St. Louis, Mo., whose attorney is Rippey and Kingsland, of The Rialto Bldg., St. Louis, Mo.,

An application for PISTONS FOR INTERNAL COMBUSTION MOTORS, filed by Elmer C. Long, of 1937 Main St., Quincy, Illinois, whose attorney is Herbert G. Fletcher, of c/o Knight Bros., 321 International Life Bldg., St. Louis, Mo., and

An application for PISTONS, filed by Edward J. Gulick, of P. O. Box 553, Elkhart, Indiana, whose attorney is Milton Tibbetts, of c/o Packard Motor Car Company, Detroit, Michigan, and whose assignee is the Cleveland Trust Company, of Cleveland, Ohio, a corporation of Ohio.

The relation of the count of the interference to the claims of the respective parties is as follows:

Count Gulick Hartog Jardine Long Maynard Spillman Taylor

1 32 24 20 7 15 16 16.

P. P. PIERCE,

V.L.C.

Examiner, Div. 12.

434467—48

2-079

INTERFERENCE

Interference No. 49573

Name, Howard E. Maynard,

Serial No. 434,467

Title, Pistons

Filed, Jan. 3, 1921

Interference with E. J. Gulick; E. C. Long; S. D. Hartog;
F. Jardine R. E. Day"E" (5)
Paper No. 22

DECISIONS OF

Primary Examiner,
Ex'r of Interferences,
Board,
Commissioner,

Adverse

Dated,
Dated, Apr. 10/24
Dated,
Dated,

REMARKS:

.....

.....

This should be placed in each application or patent involved in interference in addition to the interference letters by Primary Examiner.

434467-49

(U. S. Patent Office Jul 7 1923 Mailed)

2-213

Forwarded from 12 Div. to
Examiner of Interferences.
June 15, 1923
Ch-DPaper No. 23
[INTERFERENCE]
"E" (5)DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Washington, D. C.

Whittemore, Hulbert & Whittemore,
Penobscot Bldg.,
Detroit, Mich.Please find below a copy of a communication from
the Examiner concerning the application of Howard

E. Maynard, Filed Jan. 3, 1921, Serial No. 434,467
PISTONS.

Very respectfully,

THOMAS E. ROBERTSON,
Commissioner of Patents.

Room No. 322

Address only
The Commissioner of Patents
Washington, D. C.

49573

The case, above referred to, is adjudged to interfere with others, hereafter specified, and the question of priority will be determined in conformity with the Rules.

The statement demanded by Rule 110 must be sealed up and filed on or before Aug. 27, 1923, with the subject of the invention, and name of party filing it, indorsed on the envelope. The subject-matter involved in the interference is

Count.

I. A piston comprising a head, a skirt separated at its periphery from the head, and pin bosses connected to the head and to the upper and lower parts of the skirt, said skirt being split longitudinally at one side between its connections to said bosses.

This interference involves your application above identified and an application for PISTONS, filed by Ray E. Day, of 3825 North 24th St., Tacoma, Wash., whose attorney is Clarence E. Mehlhope, of Marquette Bldg., Chicago, Ill.,

An application for PISTONS, filed by Frank Jardine, of c/o Aluminum Castings Company, Cleveland, Ohio, and whose attorney is B. D. Watts, of 451 Lennox Bldg., East 9th & Euclid Ave., Cleveland, Ohio, and whose assignee is the Aluminum Manufactures, Inc., Cleveland, Ohio,

An application for PISTONS, filed by Stephen D. Hartog, of 3219 Natural Bridge Ave., St. Louis, Mo., whose attorney is Rippey and Kingsland, of The Rialto Bldg., St. Louis, Missouri.

434467—50

434,467—2

An application for INTERNAL COMBUSTION ENGINE PISTONS filed by Elmer C. Long, of 1037 Main St., Quincy,

Illinois, whose attorney is Herbert G. Fletcher, of 321 International Life Bldg., c/o Knight Bros., St. Louis, Mo., and

An application for **Pistons**, filed by Edward J. Gulick of P. O. Box 553, Elkhart, Indiana, whose attorney is Milton Tibbetts, of c/o Packard Motor Car Co., Detroit, Mich., and whose assignee is the Cleveland Trust Company, of **Cleveland, Ohio**, a corporation of Ohio.

The relation of the count of the interference to the claims of the respective parties is as follows:

Count	Day	Gulick	Hartog	Jardine	Long	Maynard
1	10	1	28	12	8	8.

P. P. PIERCE,

V.I.C.

Examiner, Div. 12.

434467-51

2-079

INTERFERENCE.

"P" (6)

Paper No. 24

Interference No. 49574

Name, Howard E. Maynard,

Serial No. 434,467

Title, **Pistons**

Filed, Jan. 3, 1921

Interference with E. J. Gulick; S. D. Hartog; E. C. Long;

G. A. Taylor and R. E. Day

DECISIONS OF

Primary Law Examiner, Interference
dissolved

Ex'r of Interferences,

Board,

Commissioner,

Dated, Apr 4 1924

Dated,

Dated,

Dated,

REMARKS:

This should be placed in each application or patent involved in interference in addition to the interference letters by Primary Examiner.

434467-52

(U. S. Patent Office Jul 7 1923 Mailed)

2-213

Forwarded from 12 Div. to
Examiner of Interferences.
June 15, 1923
Ch-D

Paper No. 25
[INTERFERENCE.]
"F" (6)

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Washington, D. C.

Whittemore, Hulbert & Whittemore,
Penobscot Bldg.,
Detroit, Mich.

Please find below a copy of a communication from
the Examiner concerning the application of Heward E.
Maynard, Filed Jan. 3, 1921, Serial No. 434,467, PISTONS.

Very respectfully,

THOMAS E. ROBERTSON,

Commissioner of Patents.

Room No. 322

Address only

The Commissioner of Patents
Washington, D. C.

49574

The case, above referred to, is adjudged to interfere
with others, hereafter specified, and the question of pri-
ority will be determined in conformity with the Rules.

The statement demanded by Rule 110 must be sealed
up and filed on or before Aug. 27, 1923, with the subject
of the invention, and name of party filing it, indorsed on
the envelope. The subject-matter involved in the inter-
ference is

Count.

1. A piston closed at one end and open at its op-
posite end, said piston having an annular cutting formed
through the thickness of its peripheral wall thereby pro-
viding a separated sleeve-like skirt which is approxi-
mately cylinder bearing in its entirety, a pair of wrist
pin bearings depended from said piston end and being
free from engagement with said skirt, supporting means
extending from each of said bearings to said skirt, said

skirt being provided with a longitudinal slot cut through the thickness of its wall and extending from the open end thereof to said annular cutting.

This interference involves your application above identified and an application for **Pistons**, filed by Ray E. Day, of 3825 North 24th St., Tacoma, Wash., whose attorney is Clarence E. Mehlhope, of Marquette Bldg., Chicago, Ill.,

An application for **Pistons**, filed by George A. Taylor, of 164 Dana Ave., Hyde Park, Mass., whose attorney is Macleod, Calver, Copeland & Dike, of Tremont Bldg., Boston, Mass.,

An application for **Pistons**, filed by Elmer C. Long, of 4834 Beaubien St., Detroit, Michigan, whose attorney is Herbert G. Fletcher, of International Life Bldg., St. Louis, Mo.,

434467—53

434,467—2

An application for **Pistons**, filed by Stephen D. Hartog, of 3219 Natural Bridge Ave., St. Louis, Mo., and whose attorney is Rippey and Kingsland, of The Rialto Bldg., St. Louis, Mo., and

An application for **Pistons**, filed by Edward J. Gulick, of P. O. Box 553, Elkhart, Indiana, whose attorney is Milton Tibbetts, of c/o Packard Motor Car Company, Detroit, Mich., whose assignee is The Cleveland Trust Co., of Cleveland, Ohio, a corporation of Ohio.

The relation of the count of the interference to the claims of the respective parties is as follows:

Count	Day	Gulick	Hartog	Long	Maynard	Taylor
1	18	33	32	1	16	18.

P. P. PIERCE,

V.I.C.

Examiner, Div. 12.

434467—54

2—079

INTERFERENCE.

"G" (7)

Paper No. 26

Interference No. 49575

Name, Howard E. Maynard,

Serial No. 434,467

Title, **Pistons**

Filed, Jan. 3, 1921

Interference with E. J. Gulick; E. C. Long; G. A. Taylor;

DECISIONS OF

Primary Examiner,
Ex'r of Interferences, **Adverse**
Board,
Commissioner,

Dated,
Dated, Apr. 8/24
Dated,
Dated,

REMARKS:

.....
.....
This should be placed in each application or patent involved in interference in addition to the interference letters by Primary Examiner.

434467-55

(U. S. Patent Office Jul 7 1923 Mailed)

2-213

Forwarded from 12 Div. to
Examiner of Interferences.
June 15, 1923
Ch-D

Paper No. 27
[INTERFERENCE.]
11622 (7)

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Washington, D. C.

Whittemore, Hulbert & Whittemore,
Penobscot Bldg.,
Detroit, Mich.

Please find below a copy of a communication from the Examiner concerning the application of Howard E. Maynard, Filed Jan. 3, 1921, Serial No. 434,467 PISTONS.

Very respectfully,

THOMAS E. ROBERTSON,
Commissioner of Patents.

Room No. 322

Address only
The Commissioner of Patents
Washington, D. C.

49575-

The case, above referred to, is adjudged to interfere with others, hereafter specified, and the question of priority will be determined in conformity with the Rules.

The statement demanded by Rule 110 must be sealed up and filed on or before Aug. 27, 1923, with the subject of the invention, and name of party filing it, indorsed on the envelope. The subject-matter involved in the interference is

Count.

1. A piston having a head portion with a ring groove therein, a skirt portion having its cylinder-engaging part separated from the head portion, separated pin bosses having integral flanges connecting them with the skirt on both sides of the bosses and with the head portion respectively, said skirt being split from top to bottom on one side only of the pin bosses to permit free expansion and contraction of the skirt portion.

This interference involves your application above identified and an application for PISTONS, filed by Ray E. Day, of 3825 North 24th St., Tacoma, Wash., and whose attorney is Clarence E. Mehlhope, of Marquette Bldg., Chicago, Ill.,

An application for PISTONS, filed by George A. Taylor, of 164 Dana Ave., Hyde Park, Mass., and whose attorney is Macleod, Calver, Copeland & Dike, of Tremont Bldg., Boston, Mass.,

An application for PISTON FOR AN INTERNAL COMBUSTION ENGINE, filed by Elmer C. Long, of 4834 Beaubien St., Detroit, Mich., and whose attorney is Herbert G. Fletcher, of 1111 International Life Bldg., St. Louis, Mo., and

434467—56

434,467—2

An application for PISTONS, filed by Edward J. Gulick, of P. O. Box 553, Elkhart, Indiana, whose attorney is Milton Tibbetts, of c/o Packard Motor Car Company, Detroit, Michigan, and whose assignee is the Cleveland Trust Company, of Cleveland, Ohio, a corporation of Ohio.

The relation of the count of the interference to the claims of the respective parties is as follows:

Count	Day	Gulick	Long	Maynard	Taylor
1	13	13	12	11	12.

P. P. PIERCE,

V.I.C.

Examiner, Div. 12.

434467—57

2-079

INTERFERENCE.

"H" (8)
Paper No. 28

Interference No. 49576

Name, Howard E. Maynard

Serial No. 434,467

Title, PISTONS

Filed, Jan. 3, 1921

Interference with E. J. Gulick; E. C. Long; F. Jardine;
R. E. Day

DECISIONS OF

Primary Examiner,
Ex'r of Interferences, **Adverse**
Board,
Commissioner,

Dated,
Dated, Apr. 10/24
Dated,
Dated,

REMARKS:

.....
.....
This should be placed in each application or patent
involved in interference in addition to the interference let-
ters by Primary Examiner.

434467-58

(U. S. Patent Office Jul 7 1923 Mailed)

2-213

Forwarded from 12 Div. to
Examiner of Interferences.
June 15, 1923
Ch-D

Paper No. 29
[INTERFERENCE.]
"H" (8)

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE
Washington, D. C.

Whittemore, Hulbert & Whittemore,
Penobscot Bldg.,
Detroit, Michigan.

Please find below a copy of a communication from
the Examiner concerning the application of Howard E.
Maynard, Filed Jan. 3, 1921, Serial No. 434,467, PISTONS.

Very respectfully,

THOMAS E. ROBERTSON,
Commissioner of Patents

Room No. 322

Address only
The Commissioner of Patents
Washington, D. C.

49576

* The case, above referred to, is adjudged to interfere with others, hereafter specified, and the question of priority will be determined in conformity with the Rules.

The statement demanded by Rule 110 must be stated up and filed on or before Aug. 27, 1923, with the subject of the invention, and name of party filing it, indorsed on the envelope. The subject-matter involved in the interference is

Count.

1. A piston comprising a head portion, a skirt portion, two separated pin bosses, connecting flanges in the zone of the bosses and extending from the bosses to the skirt on both sides of the bosses, connecting means from each of the bosses to the head portion, the skirt portion being entirely separated from the head portion except through the boss connections, and the skirt portion being split longitudinally of the piston to permit free expansion and contraction and the skirt portion, being cut away adjacent the outer ends of the piston bosses.

This interference involves your application above identified and an application for PISTONS, filed by Ray E. Day, of 3825 North 24th St., Tacoma, Wash., and whose attorney is Clarence E. Mehlhope, of Marquette Bldg., Chicago, Ill.,

An application for PISTONS, filed by Frank Jardine, of c/o The Aluminum Castings Co., Cleveland, Ohio, whose attorney is B. D. Watts, of 451 Lennox Bldg., East 9th & Euclid Ave., Cleveland, Ohio, and whose assignee is the Aluminum Manufactures, Inc., of Cleveland, Ohio,

434467—59

434,467—2.

An application for PISTONS, filed by Elmer C. Long, of 4834 Peaubien St., Detroit, Mich., and whose attorney is Herbert G. Fletcher, of International Life Bldg., St. Louis, Mo., and

An application for PISTONS, filed by Edward J. Gulick, of P. O. Box 553, Elkhart, Ind., and whose attorney is Milton Tibbetts, of c/o The Packard Motor Car Co., Detroit, Mich., and whose assignee is The Cleveland

Trust Company, of Cleveland, Ohio, a corporation of Ohio.

The relation of the count of the interference to the claims of the respective parties is as follows:

Count	Day	Gulick	Jardine	Long	Maynard
1	12	12	14	11	10.

P. P. PIERCE,

Examiner, Div. 13.

V.L.C.

434467-60

2-079

INTERFERENCE.

Interference No. 49577

Name, Howard E. Maynard,

Serial No. 434,467

Title, Pistons

Filed, Jan. 3, 1921

Interference with E. J. Gulick; E. C. Long; F. Jardine & R. E. Day

UP (9)
Paper No. 30

DECISIONS OF

Primary Examiner,
Ex'r of Interferences,
Board,
Commissioner,

Adverse

Dated,
Dated, Dec 20, 1923
Dated,
Dated,

REMARKS:

.....
.....
This should be placed in each application or patent involved in interference in addition to the interference letters by Primary Examiner.

434467-61

(U. S. Patent Office Jul 7 1923 Mailed)

2-213

Forwarded from 12 Div. to
Examiner of Interferences.

June 15, 1923.

Ch-D

Paper No. 31
[INTERFERENCE.]
411 (9)DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Washington, D. C.

Whittemore, Hulbert & Whittemore,
Penobscot Bldg.,
Detroit, Mich.Please find below a copy of a communication from
the Examiner concerning the application of Howard E.
Maynard, Filed Jan. 3, 1921, Serial No. 434,467, Pistons.

Very respectfully,

THOMAS E. ROBERTSON,
Commissioner of Patents.

Room No. 322

Address only
The Commissioner of Patents
Washington, D. C.

49577

The case, above referred to, is adjudged to interfere
with others, hereafter specified, and the question of pri-
ority will be determined in conformity with the Rules.The statement demanded by Rule 110 must be sealed
up and filed on or before Aug. 27, 1923, with the subject
of the invention, and name of party filing it, indorsed on
the envelope. The subject-matter involved in the inter-
ference is

Count.

1. A piston comprising a head portion, a skirt por-
tion, two separated pin bosses, connecting flanges in the
zone of the bosses and extending from the bosses to the
skirt on both sides of the bosses, connecting means from
each of the bosses to the head portion, the skirt portion
being entirely separated from the head portion except
through the boss connections, and the skirt portion being
split longitudinally of the piston to permit free expansion
and contraction.

This interference involves your application above identified and an application for **Pistons**, filed by Ray E. Day, of 3825 North 24th St., Tacoma, Wash., and whose attorney is Clarence E. Mehlhope, of Marquette Bldg., Chicago, Ill.,

An application for **Pistons**, filed by Frank Jardine, of c/o The Aluminum Castings Company, Cleveland, Ohio, whose attorney is B. D. Watts, of 451 Lennox Bldg., East 9th & Euclid Ave., Cleveland, Ohio, and whose assignee is the Aluminum Manufactures, Inc., of Cleveland, Ohio,

An application for **INTERNAL COMBUSTION ENGINE**
434467—62

434,467—2

Pistons, filed by Elmer C. Long, of 1037 Main St., Quincy, Ill., whose attorney is Herbert G. Fletcher, of 321 International Life Bldg., c/o Knight Bros., St. Louis, Mo., and

An application for **Pistons**, filed by Edward J. Gulick, of P. O. Box 553, Elkhart, Indiana, whose attorney is Milton Tibbetts, of c/o Packard Motor Car Company, Detroit, Mich., and whose assignee is the Cleveland Trust Company, of Cleveland, Ohio, a corporation of Ohio.

The relation of the count of the interference to the claims of the respective parties is as follows:

Count	Day	Gulick	Jardine	Long	Maynard
1	11	11	13	9	9.

P. P. PIERCE,

V.L.C.

Examiner, Div. 12

434467—63

2—079

INTERFERENCE.

Interference No. 49582

Name, Howard E. Maynard

Serial No. 434,467

Title, **Pistons**

Filed, Jan. 3, 1921

Interference with F. Jardine; R. E. Day

14N22 (14)
Paper No. 32

DECISIONS OF

Primary Examiner,
Ex'r of Interferences, **Adverse**
Board,
Commissioner,

Dated,
Dated, **Nov 19/23.**
Dated;
Dated,

REMARKS:

.....
.....
This should be placed in each application or patent involved in interference in addition to the interference letters by Primary Examiner.

434467-64

(U. S. Patent Office Jul 7 1923 Mailed)

2-213

Forwarded from 12 Div. to
Examiner of Interferences.
June 15, 1923
Ch-D

Paper No. 33
[INTERFERENCE]
434467 (14)

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Washington, D. C.

Whittemore, Hulbert & Whittemore,
Penobscot Bldg.,
Detroit, Michigan.

Please find below a copy of a communication from the Examiner concerning the application of Howard E. Maynard, Filed Jan. 3, 1921, Serial No. 434,467, Pistons.

Very respectfully,

THOMAS E. ROBERTSON,
Commissioner of Patents.

Room No. 322

Address only
The Commissioner of Patents
Washington, D. C.

49582

The case, above referred to; is adjudged to interfere with others, hereafter specified, and the question of priority will be determined in conformity with the Rules.

The statement demanded by Rule 110 must be sealed up and filed on or before Aug. 27, 1923, with the subject of the invention, and name of party filing it, indorsed on the envelope. The subject-matter involved in the interference is:

Count.

1. In a piston for an internal combustion engine, the combination of a head having ring grooves therein, a plurality of webs integral with said head and having diametrically opposite piston pin bosses therein, a skirt integral with said webs relieved adjacent said webs and separated from the head by circumferential slots and provided with a longitudinal slot connecting the lower end of the piston with one of the circumferential slots.

This interference involves your application above identified and an application for **Pistons**, filed by Ray E. Day, of 3825 North 24th St., Tacoma, Wash., and whose attorney is Clarence E. Mehlhope, of Marquette Bldg., Chicago, Ill., and

An application for **Pistons**, filed by Frank Jardine, of c/o Aluminum Castings Co., Cleveland, Ohio, whose attorney is B. D. Watts, of 451 Lennox Bldg., East 9th & Euclid Ave., Cleveland, Ohio, and whose assignee is the Aluminum Manufactures, Inc., of Cleveland, Ohio.

434467—65

434,467—2

The relation of the count of the interference to the claims of the respective parties is as follows:

Count	Day	Jardine	Maynard
1	19	3	17.

P. P. PIERCE,

V.L.C.

Examiner, Div. 12.

434467—66

2—079^e

INTERFERENCE.

Interference No. 49589
 Name—Howard E. Maynard
 Serial No. 434,467
 Title, **Pistons**
 Filed, Jan. 3, 1921
 Interference with Frank Jardine

“U”
 Paper No. 34

DECISIONS OF

Primary Examiner,
Ex'r of Interferences,
Board,
Commissioner,

Adverse

Dated,
Dated, Nov 19/23
Dated,
Dated,

REMARKS:

.....
.....
This should be placed in each application or patent
involved in interference in addition to the interference
letters by Primary Examiner.

434467-67

(U. S. Patent Office Jul 7 1923 Mailed)

2-213

Forwarded from 12 Div. to
Examiner of Interferences.
June 15, 1923
Ch-D

Paper No. 35
[INTERFERENCE.]
"U"

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE

Washington, D. C.

Whittemore, Hulbert & Whittemore,
Penobscot Bldg.,
Detroit, Mich.

Please find below a copy of a communication from
the Examiner concerning the application of Howard E.
Maynard, Filed Jan. 3, 1921, Serial No. 434,467, PISTONS.

Very respectfully,

THOMAS E. ROBERTSON,
Commissioner of Patents.

Room No. 322

Address only
The Commissioner of Patents
Washington, D. C.

49589

The case, above referred to, is adjudged to interfere
with others, hereafter specified, and the question of pri-
ority will be determined in conformity with the Rules.

The statement demanded by Rule 110 must be sealed up and filed on or before Aug. 27, 1923, with the subject of the invention, and name of party filing it, indorsed on the envelope. The subject-matter involved in the interference is

Count.

1. In a piston for an internal combustion engine the combination of a head comprising a head disc and a peripheral flange having ring grooves therein, a pair of cordal webs, substantially rectangular in shape and located opposite each other in the piston, connected integrally at their upper edges to the peripheral flange of the piston, diametrically opposite wrist pin bosses, one in each of said webs, a skirt for said piston integrally connected to each of the side edges of the webs and cut away so as to expose each of the rectangular webs and the piston pin bosses from the outside of the piston, said piston being provided with circumferential slots between the skirt and head and with a longitudinal slot extending from one of the circumferential slots to the open end of the piston.

This interference involves your application above identified and an application for Pistons, filed by Frank Jardine, of c/o Aluminum Castings Co., Cleveland, Ohio, whose attorney is B. D. Watts, of 451 Lennox Bldg., East 9th & Euclid Ave., Cleveland, Ohio, and whose assignee is the Aluminum Manufactures, Inc., of Cleveland, Ohio.

434467—68

434,467—2

The relation of the count of the interference to the claims of the respective parties is as follows:

Count	Jardine	Maynard
1	6	18.

P. P. PIERCE,

Examiner, Div. 12.

V.I.C.

434467—69

(Docket Division Sep 5 1923 U. S. Patent Office)

(Mail Room Sep 4 1923 U. S. Patent Office)

(U. S. I. R. Documentary Stamp 25 Cents)

Case in Interference

434,467

Division 12, Paper No. 36

Sep 5 1923

U. S. Patent Office

WHITTEMORE, HULBERT, WHITTEMORE & BELKNAP

Suite 1112 Penobscot Building

Detroit, Mich. August 31, 1923.

HON. COMMISSIONER OF PATENTS,
Washington, D. C.

Sir—

In the matter of application for patent of HOWARD E. MAYNARD entitled Improvements in Pistons, serial number 434,467, filed January 3, 1921, now involved in interference proceedings numbered 49569 to 49577 inclusive and 49582 and 49589,—please recognize Mr. J. King Harness, of Suite 1211 Majestic Building, Detroit, Wayne County, Michigan, as our associate in the further prosecution of said application and interference proceedings involving same, and address all future communications in either matter to him at his address above given.

Very respectfully,

WHITTEMORE, HULBERT & WHITTEMORE,

JPB

Attorneys of record for Maynard.

434467—70

(U. S. Patent Office Dec 3 1923 Mailed)

2—260

Div. 12 Room 322

Paper No. 37

Address only

"The Commissioner of Patents,
Washington, D. C."

and not any official by name.

All communications respecting this application should give the serial number date of filing, title of invention, and name of the applicant.

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE
Washington

J. King Harness,
1211 Majestic Bldg.,
Detroit, Michigan.

Please find below a communication from the EXAM-
INER in charge of the application of Howard E. Maynard,
Filed Jan. 3, 1921, Serial No. 434,467—Pistons.

THOMAS E. ROBERTSON,
Commissioner of Patents.

49571

In accordance with the provisions of Rule 129, the
application for patent filed by Gustav R. Kelm, whose
post-office address is 417 East 23rd Street, New York, New
York, whose attorney is Clarence D. Kerr, of No. 5 Nas-
sau Street, New York, New York, and whose assignee is
the Walker N. Levett Company of New York, New York,
is hereby added to Interference No. 49571, between Day
v. Taylor v. Spillman v. Maynard v. Jardine v. Long v.
Gulick to which you are a party. The claim of Kelm's
application corresponding to the count of the issue is:

Count	Claim
1	7.

The new party only is given until the
day of 19.... within which to file the
preliminary statement required by Rule 110.

The issue of the interference remains unchanged.

P. P. PIERCE,
Examiner, Div. 12.

V.L.C.

434467—71

(U. S. Patent Office Dec 3 1923 Mailed)

2-260

Div. 12 Room 322

Paper No. 38

Address only,
"The Commissioner of Patents,
Washington, D. C.,"
and not any official by name.

All communications respecting this
application should give the serial number,
date of filing, title of invention, and
name of the applicant.

Ch-D

DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE
Washington

J. King Harness,
1211 Majestic Bldg.,
Detroit, Michigan.

Please find below a communication from the Examiner in charge of the application of Howard E. Maynard, filed Jan. 3, 1921, Serial No. 434,467, Pistons.

THOMAS E. ROBERTSON,
Commissioner of Patents.

49572

In accordance with the provisions of Rule 129, the application for patent filed by Gustav R. Kelm, whose post-office address is 417 East 23rd St., New York, New York, whose attorney is Clarence D. Kerr, of #5 Nassau Street, New York, New York, and whose assignee is the Walker M. Levett Company, of New York, New York, a corporation of New York, is hereby added to interference No. 49572, between Taylor v. Spillman v. Maynard v. Jardine v. Hartog v. Long v. Gulick, to which you are a party. The claim of Kelm's application corresponding to the count of the issue is:

Count	Claim
-------	-------

1

8.

The new party only is given until the Dec 31 1923, day of, 19.., within which to file the preliminary statement required by Rule 110.

The issue of the interference remains unchanged.

P. P. PIERCE,

V.I.C.

Examiner, Div. 12.

434467-72

(Mailed Mar 23 1926)

2-260

Div. 12 Room 380

Paper No. 39

Address only,

"The Commissioner of Patents,
Washington, D. C.,"
and not any official by name.

All communications respecting this
application should give the serial number,
date of filing, and name of the applicant.

Custer-J

DEPARTMENT OF COMMERCE

UNITED STATES PATENT OFFICE

Washington March 23, 1926

Please find below a communication from the Exam-
iner in charge of this application.

THOMAS E. ROBERTSON,

Commissioner of Patents.

Applicant: Howard E. Maynard
Ser. No. 434,467
Filed Jan. 3, 1921
For Pistons

J. King Harness,
1211 Majestic Bldg.,
Detroit, Mich.

The following patent is added to the record:

Derby et al, 1,053,790, Feb. 18, 1913 (74-108-9)

Interference Nos. 49,573; 49,577; 49,576; 49,576;
49,569; 49,570; 49,571; 49,572; 49,582; and 49,589 in which
this application was involved having terminated adverse-
ly to applicant, claims 8 to 15 inclusive, 17 and 18 con-
stituting the issues thereof stand finally rejected in ac-
cordance with Rule 132.

Interference No: 49572 having been dissolved on
Spillman et al and Ebbs of record together with Derby
et al, cited, claim 16 stands rejected in accordance with
the decision noted in connection with this interference.

The remaining claims are all rejected as setting forth nothing patentable over the various issues of the numerous interferences.

GYC

P. P. PIERCE,
Examiner.

434467-73

(Mailed Jun 11 1926)

2-260

Div. 12 Room 380

Paper No. 40

Address only

"The Commissioner of Patents,
Washington, D. C.,"
and not any official by name.

All communications respecting this
application should give the serial number,
date of filing, and name of the applicant.

Pi-J

Copy sent applicant

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE

Washington June 11, 1926

Please find below a communication from the Examiner in charge of this application.

THOMAS E. ROBERTSON,

Commissioner of Patents.

Applicant: Howard E. Maynard
Ser. No. 434,467

Filed Jan. 3, 1921

For Pistons

J. King Harness,
1211 Majestic Bldg.,
Detroit, Michigan.

The following claims are suggested to the applicant for the purpose of interferences:

—In a piston for an internal combustion engine, the combination of a head, a plurality of webs integral with said head and having oppositely disposed wrist pin bosses mounted one in each web, a skirt integral with said webs relieved adjacent said webs to a point between the bosses and the end of the skirt, said piston being provided with circumferential slots between the piston

head and skirt and with a longitudinal slot connecting the open end of the skirt with one of the circumferential slots.

In a piston for an internal combustion engine, the combination of a head and a plurality of webs integral with said head, diametrically oppositely disposed wrist pin bosses, one mounted in each of said webs and integral therewith, a skirt integral with said webs, relieved adjacent said webs, said relieved portion terminating between the bosses and the end of the skirt, said piston being provided with circumferential slots between the piston head and skirt, with a longitudinal slot connecting the end of the skirt with one of said circumferential slots, and with other circumferential slots between the end of the webs and the open end of the skirt.

In a piston for an internal combustion engine, the combination of a head provided with a disc portion and a flange portion and with ring grooves in the flange portion, a pair of substantially rectangular shaped webs integral with and depending from the flange portion of the head, a pair of oppositely disposed wrist pin bosses mounted one in each of said webs, a cross rib in said head and integral with the disc portion and flanges of the head and with said web and piston pin bosses, a skirt for said piston extending below said webs and integrally connected to the side edges of each of said webs, said piston being provided with circumferential slots between the skirt and head, with a longitudinal slot connecting one of said circumferential slots with the bottom edge of the skirt and with circumferential slots between the lower edges of the webs and the adjacent portion of the skirt.

A piston for an internal combustion engine comprising a head, oppositely disposed walls depending from and connected at their upper ends to the head, bosses carried by the said walls out of direct contact with the head, and a skirt structure including two oppositely disposed bearing portions joined together by extensions below each of the said bosses and indirectly connected to the head by the said walls, the skirt structure being separated, by air gaps, from the head at its upper edge, and from the said walls below the bosses.

434467-74

434,467-2

A piston for an internal combustion engine comprising a head, oppositely disposed walls depending from and connected at their upper ends to the head, the walls

being depressed within the maximum diameter of the piston, bosses carried by the said walls out of direct contact with the head, and a skirt structure, including two oppositely disposed bearing portions joined together by extensions below each of the said bosses and indirectly connected to the head by the said walls, the skirt structure being separated, by air gaps, from the head at its upper edge, and from the said walls below the bosses.—

A piston for an internal combustion engine comprising an integral head and skirt, the said skirt consisting of oppositely disposed cylinder engaging bearing walls separated from the head by circumferential slots, a slot extending lengthwise of one of the said bearing walls, depressed walls connecting the said bearing walls, and other cylinder engaging walls connecting the first said bearing walls and separated from the said depressed walls by circumferential slots.—

Failure to make the above claims within thirty days from the date of mailing of this letter will be taken as a disclaimer of the subject matter covered thereby.

P. P. PIERCE,

Examiner.

434467—75

8453

(Mail Room Jun 24 1926 U. S. Patent Office)

U. S. Patent Office

Jun 25 1926

Division 12, Paper No. 41

IN THE UNITED STATES PATENT OFFICE

Div. 12, Room 380
Howard E. Maynard
Pistons
Serial No. 434,467
Filed Jan. 3, 1921

AMENDMENT.

Commissioner of Patents,
Washington, D. C.

G Sir:—In response to Office Action of June 11th, 1926.
Please add the following claims:

196: 6 "In a piston for an internal combustion engine, the combination of a head, a plurality of webs integral with said head and

G¹ — having oppositely disposed wrist pin bosses mounted one in each web, a skirt integral with said webs relieved adjacent said webs to a point between the bosses and the end of the skirt, said piston being provided with circumferential slots between the piston head and skirt and with a longitudinal slot connecting the open end of the skirt with one of the circumferential slots.

204 7 In a piston for an internal combustion engine, the combination of a head and a plurality of webs integral with said head, diametrically oppositely disposed wrist pin bosses, one mounted in each of said webs and integral therewith, a skirt integral with said webs, relieved adjacent said webs, said relieved portion terminating between the bosses and the end of the skirt, said piston being provided with circumferential slots between the piston head and skirt, with a longitudinal slot connecting the end of the skirt with one of said circumferential slots, and with other circumferential slots between the end of the webs and the open end of the skirt.

210 8 In a piston for an internal combustion engine, the combination of a head provided with a disc portion and a flange portion and with ring grooves in the flange portion, a pair of substantially rectangular shaped webs integral with and depending from the flange portion of the head, a pair of oppositely disposed wrist pin bosses mounted one in each of said webs, a cross rib in said head and integral with the disc portion and flanges of the head and with said web and piston pin bosses, a skirt for said piston extending below said webs and integrally connected to the side edges of each of said webs, said piston being provided with circumferential slots between the skirt and head, with a longitudinal slot connecting one of said circumferential slots with the bottom edge of the skirt and with circumferential slots between the lower edges of the webs and the adjacent portion of the skirt.

220 9 A piston for an internal combustion engine, comprising a head, oppositely disposed walls depending from and connected at their upper ends to the head, bosses carried by the said walls out of direct contact with

the head, and a skirt structure including two oppositely disposed bearing portions jointed together by extensions below each of the said bosses and indirectly connected to the head by the said walls, the skirt structure being separated, by air gaps, from the head at its upper edge and from the said walls below the bosses.

8454

23G 10 A piston for an internal combustion engine comprising a head, oppositely disposed walls depending from and connected at their upper ends to the head, the walls being depressed within the maximum diameter of the piston, bosses carried by the said walls out of direct contact with the head, and a skirt structure, including two oppositely disposed bearing portions joined together by extensions below each of the said bosses and indirectly connected to the head by the said walls, the skirt structure being separated, by air gaps, from the head at its upper edge, and from the said walls below the bosses.

24G 11 A piston for an internal combustion engine comprising an integral head and skirt, the said skirt consisting of oppositely disposed cylinder engaging bearing walls separated from the head by circumferential slots, a slot extending lengthwise of one of the said bearing walls, depressed walls connecting the said bearing walls, and other cylinder engaging walls connecting the first said bearing walls and separated from the said depressed walls by circumferential slots. (sig.)

Respectfully submitted,

J. KING HARNES,

Attorney for Applicant.

Dated: June 22nd, 1926,
c/o Chrysler Corporation
Detroit, Michigan.

434467-77

2-079

INTERFERENCE.

Interference No. 54092
Name, Howard E. Maynard
Serial No. 434,467
Title, Pistons
Filed, Jan. 3, 1921
Interference with Frank Jardine and Ferdinand Jehle

Paper No. 42

DECISIONS OF

Law Examiner,
Ex'r of Interferences, **Favorable**
Board,
Commissioner,

Dated,
Dated, **Feb. 3/27**
Dated,
Dated,

REMARKS:

.....
.....
This should be placed in each application or patent involved in interference in addition to the interference letters by Primary Examiner.

434467-78

(Patent Office Jul 16 '26 Mailed)

213

Div. 12 Room 380

Paper No. 43

Address only

"The Commissioner of Patents,
Washington, D. C."
and not any official by name

All communications respecting this application should give the serial number, date of filing, and name of the applicant

Pi-J
6/29/26

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE

Washington

Please find below a communication from the Examiner in charge of this application.

THOMAS E. ROBERTSON,
Commissioner of Patents.

J. King Harness
1211 Majestic Bldg.,
Detroit, Michigan.

Applicant: Howard E. Maynard
Ser. No. 434,467
Filed Jan. 3, 1921
For Pistons

The case, above referred to, is forwarded to the Examiner of Interferences because it is adjudged to inter-

fere with others, hereafter specified. The question of priority will be determined in conformity with the Rules. The interference will be identified as No. 54092. On or before Aug 24 1926 the statement demanded by rule 110 must be sealed up and filed, with the subject of invention, and name of party filing it, indorsed on the envelope. The subject-matter involved in the interference is

Counts.

1. In a piston for an internal combustion engine, the combination of a head, a plurality of webs integral with said head and having oppositely disposed wrist pin bosses mounted one in each web, a skirt integral with said webs relieved adjacent said webs to a point between the bosses and the end of the skirt, said piston being provided with circumferential slots between the piston head and skirt and with a longitudinal slot connecting the open end of the skirt with one of the circumferential slots.
2. In a piston for an internal combustion engine, the combination of a head and a plurality of webs integral with said head, diametrically oppositely disposed wrist pin bosses, one mounted in each of said webs and integral therewith, a skirt integral with said webs, relieved adjacent said webs, said relieved portion terminating between the bosses and the end of the skirt, said piston being provided with circumferential slots between the piston head and skirt, with a longitudinal slot connecting the end of the skirt with one of said circumferential slots, and with other circumferential slots between the end of the webs and the open end of the skirt.
3. In a piston for an internal combustion engine, the combination of a head provided with a disc portion and a flange portion and with ring grooves in the flange portion, a pair of substantially rectangular shaped webs integral with and depending from the flange portion of the head, a pair of oppositely disposed wrist pin bosses mounted one in each of said webs, a cross rib in said head and integral with the disc portion and flanges of the head and with said web and piston pin bosses, a skirt for said piston extending below said webs and integrally connected to the side edges of each of said webs, said piston being provided with circumferential slots between the skirt and head, with a longitudinal slot connecting one of said circumferential slots with the bottom edge of

the skirt and with circumferential slots between the lower edges of the webs and the adjacent portion of the skirt.

4. A piston for an internal combustion engine comprising a head, oppositely disposed walls depending from and connected at their upper ends to the head, bosses carried by the said walls out of direct contact with the head, and a skirt structure including two oppositely dis-

434467—79

434,467—2

posed bearing portions joined together by extensions below each of the said bosses and indirectly connected to the head by the said walls, the skirt structure being separated, by air gaps, from the head at its upper edge, and from the said walls below the bosses.

5. A piston for an internal combustion engine comprising a head, oppositely disposed walls depending from and connected at their upper ends to the head, the walls being depressed within the maximum diameter of the piston, bosses carried by the said walls out of direct contact with the head, and a skirt structure including two oppositely disposed bearing portions joined together by extensions below each of the said bosses and indirectly connected to the head by the said walls, the skirt structure being separated, by air gaps, from the head at its upper edge, and from the said walls below the bosses.

6. A piston for an internal combustion engine comprising an integral head and skirt, the said skirt consisting of oppositely disposed cylinder engaging bearing walls separated from the head by circumferential slots, a slot extending lengthwise of one of the said bearing walls, depressed walls connecting the said bearing walls, and other cylinder engaging walls connecting the first said bearing walls and separated from the said depressed walls by circumferential slots.

This interference involves your application above identified and an application for Pistons, filed by Frank Jardine and Ferdinand Jehle of c/o Aluminum Manufacturers, Inc., Cleveland, Ohio, whose attorney is Richey and Watts of 1983 Union Trust Bldg., Cleveland, Ohio, and whose assignee is the Aluminum Manufacturers, Inc., of Cleveland, Ohio, a corporation of Delaware.

The relation of the counts of the interference to the claims of the respective parties is as follows:

Counts	Jardine et al	Maynard
1	1	19
2	2	20
3	5	21
4	7	22
5	8	23
6	9	24.

P. P. PIERCE,

Examiner.

434467-80

(Mailed Mar 2-1927)

260

Div. 12 Room 380

Paper No. 44

Address only

"The Commissioner of Patents,
Washington, D. C.,"
and not any official by name

All communications respecting this
application should give the serial number,
date of filing, and name of
the applicant

DEPARTMENT OF COMMERCE

UNITED STATES PATENT OFFICE

Pi-J

Washington

March 2, 1927

Please find below a communication from the Ex-
aminer in charge of this application.

THOMAS E. ROBERTSON,

Commissioner of Patents.

Application: Howard E. Maynard
Ser. No. 434,467

Filed Jan. 3, 1921

For Pistons

J. King Harness
1211 Majestic Bldg.,
Detroit, Michigan

Interference No. 54092 in which this application was
recently involved having been decided favorable to ap-

plicant, further action by the Office awaits response to the rejection of March 23, 1926.

P. P. PIERCE,
Examiner.

remailed
c/o Chrysler Corp.
Detroit, Mich.
3/9/27

434467-81

U. S. Patent Office
Mar 18 1927
Division 12, Paper No. 45

POWER TO INSPECT

The undersigned attorney in the application of Howard E. Maynard for improvements in Pistons, Serial No. 434,467, filed January 3, 1921, hereby gives unto Francis D. Thomas, of the firm of Bacon and Thomas, Washington, D. C., full power to inspect the said application.

J. KING HARNESS.

March 15th, 1927,
c/o Chrysler Corporation,
Detroit, Michigan.

OK
P. P. Pierce
Mch/18/27

434467-82

(Application Div. Mar 22 1927 U. S. Patent Office)

U. S. Patent Office
Mar 23 1927
Division 12, Paper No. 46

IN THE UNITED STATES PATENT OFFICE

Maynard,
Pistons,
Serial No. 434,467,
Filed Jan. 3, 1921.

H

Hon. Commissioner of Patents,
Washington, D. C.

(13 cls. in case)

Sir:— Cancel claims 8 to 18 inclusive.

In the matter of the above entitled application, and

and March 2, 1927, respectively, applicant begs to respectfully request that the office more specifically state its ground of rejection of claims 1 to 7. In other words, the mere rejection of these claims on the multiplicity of counts constituting the previously decided interferences is entirely insufficient for applicant to determine just what the Examiner has in mind. As far as counsel can determine, counts 1 to 7 are clearly patentable over the counts of all the previous interferences, and should be allowed forthwith. It is, however, believed, that the Examiner should apply claims 1 to 7 to the particular interferences or interference counts he has in mind in order that applicant might make an intelligent response.

Respectfully submitted,

MAYNARD,

By J. KING HARNES,

Attorney.

March 21, 1927

434467-83

(Mailed Oct 19 1927)

260

Div. 12 Room 380

Paper No. 47

Address only

"The Commissioner of Patents,
Washington, D. C.,"
and not any official by name

All communications respecting this
application should give the serial number,
date of filing, and name of
the applicant

DEPARTMENT OF COMMERCE

UNITED STATES PATENT OFFICE

Chu-J

Washington Oct. 19, 1927

Please find below a communication from the Examiner in charge of this application.

THOMAS E. ROBERTSON,

Commissioner of Patents.

Applicant: Howard E. Maynard
Ser. No. 434,467
Filed Jan. 3, 1921
For Pistons

J. King Harness
1211 Majestic Bldg.
Detroit, Michigan

Amended March 22, 1927.

Additional reference:

Schmiedeknecht, 1,256,265, Feb. 12, 1918 (74-108-8)

In claim 1 there is no antecedent for "segmental portions" in the tenth line of the claim.

Upon reconsideration claim 3 is rejected on Schmiedeknecht, cited, who discloses a piston comprising a head and a skirt with a web connecting oppositely bearing portions and with opening slots between the web and the cylindrical portion of the skirt below the web.

Claims 4, 6 and 7 are rejected as being functional, there being insufficient structure set up to perform the operations and functions indicated by the matter in the claims following "whereby."

Claim 5 is rejected as being unpatentable over Schmiedeknecht in view of Ebbs, of record. This claim is also rejected as being functional as insufficient structure is shown whereby the operations indicated in the latter part of the claim are performed.

The claims which are rejected upon the single ground of functionality, when amended to overcome this condition, will probably be allowed as they define a structure which is in accord with the issues of the interferences in which the applicant received a favorable decision.

Claims 1, 2 and 19 to 24 inclusive are allowed subject

434467-84

(This Action Must be Responded to Within Six Months.)

434,467-2

to the corrections of informal matters noted above.

P. P. PIERCE,

Examiner.

434467-85

8453

(Application Div. Oct 29 1927 U. S. Patent Office)

U. S. Patent Office

Oct 31 1927

Division 12, Paper No. 48

IN THE UNITED STATES PATENT OFFICE

Div. 12

Howard E. Maynard

Filed Jan. 3, 1921

Pistons

Serial No. 434,467

POWER TO INSPECT

Hon. Commissioner of Patents,

Sir:

In the matter of the above entitled application, kindly permit the firm of Bacon & Thomas, 724 Ninth Street, N. W., Washington, D. C., to inspect the file of this case and make copies.

J. KING HARNES,

Attorneys.

Oct. 28, 1927

OK

PPP

Oct 31/27

434467-86

8455

(Mail Room Nov. 10 1927 U. S. Patent Office)

U. S. Patent Office

Nov 11 1927

Division 12, Paper No. 49

IN THE UNITED STATES PATENT OFFICE

Div. 12, Room 380

Howard E. Maynard

Pistons

Serial No. 434,467

Filed Jan. 3, 1921

Amendment

Commissioner of Patents,
Washington, D. C.

Sir:

I In response to Office Action of October 19th, 1927.
Cancel claims 3 and 5

Claim 1, line 4, before "webs" insert *said skirt having a pair of spaced segmental portions*.
Same claim, line 8, before "skirt" insert *segmental portions of the*. Same line, cancel "extending between said webs." Same claim, next to the last line, change "portion" to *portions*.

OK Claims 4, 6 and 7, lines 6, 9 and 4 respectively, change "whereby" to *separating*.

Claims 4, 6 and 7, lines 7, 10 and 4 respectively, change "are" to *being*.

REMARKS

The rejected claims have been cancelled and the formal objections to claims 1, 4, 6 and 7 have been remedied so that the case is now in condition for allowance.

Respectfully submitted,

J. KING HARNES,

Attorney for Applicant.

Dated November 7th, 1927,
c/o Chrysler Corporation,
Detroit, Michigan.

434467—87

(Mailed Nov 25 1927)

181

Div. 12—BDJ

Serial No. 434,467

Address only

The Commissioner of Patents
Washington, D. C.

DEPARTMENT OF COMMERCE

UNITED STATES PATENT OFFICE

Washington

November twenty-five, 1927

Howard E. Maynard, Assors. etc.

Your Application for a patent for an Improvement in Pistons filed Jan. 3, 1921 has been examined and Allowed with 11 claims.

The final fee, Twenty Dollars, With \$1 Additional for Each Claim Allowed in Excess of 20, must be paid not later than Six Months from the date of this present notice of allowance. If the final fee be not paid within that period, the patent will be withheld, but the applica-

tion may be renewed within one year after the date of the original notice with a renewal fee of \$20 and \$1 additional for each claim in excess of 20.

The office delivers patents upon the day of their date, on which date their term begins to run. The preparation of the patent for final signing and sealing will require about four weeks, and such work will not be begun until after payment of the necessary final fee.

When the final fee is paid, there should also be sent, Distinctly and Plainly Written, the name of the Inventor, Title of the Invention, and Serial Number as Above Given, Date of Allowance (which is the date of this circular), Date of Filing, and, if assigned, the Names of the Assignees.

If it is desired to have the patent issue to an Assignee or Assignees, an assignment containing a Request to that effect, together with the Fee for recording the same, must be filed in this office on or before the date of payment of the final fee.

After issue of the patent, uncertified copies of the drawings and specifications may be purchased at the price of Ten Cents Each. The money should accompany the order. Postage stamps will not be received.

The final fee will Not be received from other than the applicant, his assignee or attorney, or a party in interest as shown by the records of the Patent Office.


Notice.—When the Number of Claims Allowed is in Excess of 20, no Sum Less than \$20 Plus \$1 Additional for Each Claim in Excess of Twenty Can Be Accepted as the Final Fee.


Respectfully,

THOMAS E. ROBERTSON,

Commissioner of Patents.

J. King Harness
1211 Majestic Bldg.,
Detroit, Michigan

 In Remitting the Final Fee Give the Serial Number at the Head of this Notice.

 Uncertified Checks Will Not Be Accepted.

B

(#20 Rec'd Dec 15 1927 C. C. U. S. Pat. Office **Ok J**)

CHRYSLER CORPORATION
Detroit, Michigan, U. S. A.
December 13th, 1927

Commissioner of Patents,
Washington, D. C.

Sir:

I hand you herewith check for twenty dollars (\$20.00) in payment of the final fee in the application of Howard E. Maynard for Pistons, Serial No. 434,467, Filed January 3, 1921, allowed November 25, 1927, and assigned to Chrysler Corporation.

It is hoped that the patent may now be issued at an early date.

Very truly yours,

J. KING HARNESS,

JKH:EB

Patent Counsel.

434467-89

254

Div. 12 Room 380

Paper No. 50

Address only

"The Commissioner of Patents,
Washington, D. C.,"
and not any official by name

All communications respecting this application should give the serial number, date of filing, and name of the applicant

DEPARTMENT OF COMMERCE

UNITED STATES PATENT OFFICE

Washington

Dec. 29, 1927.

Please find below a communication from the Examiner in charge of this application.

THOMAS E. ROBERTSON,

Commissioner of Patents.

J. King Harness,
1211 Majestic Building,
Detroit, Michigan.

Applicant H. E. Maynard,
Ser. No. 434,467,
Filed Jan. 3, 1921,
For Pistons.

In accordance with the provisions of Order No. 2308, dated March 12, 1917, which reads in part as follows:

Obvious informalities in the application may be corrected by the examiner, but said correction must be in the form of an amendment, approved by the Principal Examiner in writing, placed in the file, and made a part of the record. The changes specified in the amendment will be entered by the clerk in the regular way.

the changes, hereinafter specified, are made by the examiner in the application above identified.

Should these changes not be satisfactory to the applicant, appropriate amendment may be proposed under the provisions of Rule 78, provided the specification has not been printed.

The application has been amended as follows:

K

In claim 9, line 5, "jointed" has been changed to *joined*.

In claim 6, line 2, "*disposed*" has been inserted after "oppositely."

FRANCIS G. COLE,
Acting Examiner.

INC

434467-90

(Mail Room Sep 30 1930 U. S. Patent Office)

#51

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF OHIO (Eastern Division)

HONORABLE COMMISSIONER OF PATENTS,
Washington, D. C.

SIR:

In compliance with the Act of February 18, 1922 (41 42 Stat. L.), you are advised that there was filed on the 29th day of September, 1930, in this court an action, suit, or proceeding No. 3510 entitled

Name The Cleveland Trust Company
Cleveland, Ohio

Plaintiff

Address Chrysler Corporation
Highland Park, Michigan

versus

Name The Simmons Manufacturing Company
3405 Perkins Ave., Cleveland, Ohio Defendant

Address Sterling Products Corporation
2914 North Market St., St. Louis, Missouri

brought upon the following patents:

PATENT NO.	DATE OF PATENT.	PATENTEE.
1,092,870	April 14, 1914	Edward O. Spillman and Louis P. Mooers
1,402,309	Jan. 3, 1922	L. P. Mooers
1,153,902	Sept. 21, 1915	Gustave E. Franquist
1,472,223	Nov. 6, 1923	H. & H. Machine Company
16,273		
Reissue	Feb. 23, 1926	Cleveland Trust Company
1,655,968	Jan. 10, 1928	Chrysler Corporation and Aluminum Co.
1,763,523	June 10, 1930	Cleveland Trust Company
1,256,265	Feb. 12, 1918	Victor E. Schmiedeknecht

PATENT NO.	DATE OF PATENT.	PATENTEE.
------------	-----------------	-----------

In the above-entitled case the following decision has been rendered or decree issued:

IN WITNESS WHEREOF I have affixed my hand this 29th day of Sept., 1930, at Cleveland, Ohio.

B. C. MILLER,

F. J. Denzler,

Clerk of said Court.

By RUTH STRAIN,

Deputy Clerk.

434467-91

Notice on filing of patent case

DISTRICT COURT OF THE UNITED STATES

NORTHERN DISTRICT OF OHIO

EASTERN DIVISION

Honorable Commissioner of Patents, Washington, D. C.
SIR:

In compliance with the Act of February 18, 1922 (41 Stat. L.), you are advised that there was filed on the 29th day of September, 1930, ~~1931~~, in this court an action, suit, or proceeding, No. 3510, entitled—

Name The Cleveland Trust Company, Plaintiff
Cleveland, Ohio

Name Chrysler Corporation,
Michigan

versus

Name The Simons Manufacturing Company, Defendant
Cleveland, Ohio

Name Sterling Products Corporation,
St. Louis, Missouri

brought upon the following patents:

PATENT NO.	DATE OF PATENT.	PATENTEE.
1,092,870	April 14, 1914	Edward O. Spillman & Louis P. Mooers
1,402,309	Jan. 3, 1922	L. P. Mooers
1,153,902	Sept. 21, 1915	Gustave E. Franquist
1,473,233	Nov. 6, 1923	H. & H. Machine Company
16,273 Reissue	Feb. 23, 1926	Cleveland Trust Company
1,655,968	Jan. 10, 1928	Chrysler Corp. and Aluminum Co.
1,763,523	June 10, 1930	Cleveland Trust Company
1,256,265	Feb. 12, 1918	Victor E. Schmiedeknecht

In the above-entitled case, on the day of, 193., the following patents have been included by

(Insert amendment, answer, cross bill, or other pleading)

PATENT NO.	DATE OF PATENT.	PATENTEE.
------------	-----------------	-----------

In the above-entitled case the following decision has been rendered or decree issued: Sept. 25, 1931 Interlocutory Decree filed & ent.; Letters Patent Nos. 1,092,870,

1,153,902, 1,256,265, 1,402,309, Re-16,273, good and valid in law; The Cleveland Trust Co. owner; Letters Patent No. 1,655,968, good and valid in law; The Cleveland Trust Co. and Chrysler Corp. owner; Letters Patent Nos. 1,763,523, 1,815,733 are good and valid in law and pltf, The Cleveland Trust Co. owner; that defendant the Simmons Manufacturing Co. has infringed all of said Letters Patent; Plaintiff to recover of defendant; that cause be referred to Wm. B. Woods, Special Master for accounting; injunction granted; Pltf. to recover of defendant costs Jones Judge.

IN WITNESS WHEREOF, I have affixed my hand this 28th day of September, 1931, at Cleveland, Ohio.

B. C. Mullan;

F. J. Denzler,

Clerk.

By W. L. STEVENS,

Deputy Clerk. N

434467-92

PRINTER'S NOTE:

A copy of U. S. Patent No. 1,655,968, Jan. 10, 1928, to H. E. Maynard was bound into the original of this Exhibit at this point but inasmuch as it appears, *supra*, at page 1299 as Plaintiffs' Exhibit No. 4, it has been omitted to comply with the Equity Rule against duplication.

1/24/27.

2/26/27.

2-421

1921

CONTENTS:

1. Application 2 papers.
2. Rej Apr 9 1921
3. Amendment A Sept. 12 1921
4. Rej Jan 9 1922
5. Amendment B Feb. 2, 1922
6. Rej May 11 1922
7. Amendment C May 29, 1922
8. Rej Jul 13 1922
9. Amendment D Aug 16, 1922

10. Rej Oct 5 1922
11. Amendment E March 19, 1923
12. Sug Claim Apr 5 1923
13. Amendment F April 23, 1923
14. Intf Brief ^{44A} (1)
15. Intf Letter ^{44A} (1) Jul 7 1923
16. Intf Brief ^{44B} (2)
17. Intf Letter ^{44B} (2) Jul 7 1923
18. Intf Brief ^{44C} (3)
19. Intf Letter ^{44C} (3) Jul 7 1923
20. Intf Brief ^{44D} (4)
21. Intf Letter ^{44D} (4) Jul 7 1923
22. Intf Brief ^{44E} (5)
23. Intf Letter ^{44E} (5) Jul 7 1923
24. Intf Brief ^{44F} (6)
25. Intf Letter ^{44F} (6) Jul 7 1923
26. Intf Brief ^{44G} (7)
27. Intf Letter ^{44G} (7) Jul 7 1923
28. Intf Brief ^{44H} (8)
29. Intf Letter ^{44H} (8) Jul 7 1923
30. Intf Brief ^{44I} (9)
31. Intf Letter ^{44I} (9) Jul 7 1923
32. Intf Brief ^{44N} (14)
33. Intf Letter ^{44N} (14) Jul 7 1923
34. Intf Brief "U"
35. Intf. Letter "U" Jul 7 1923
36. Asso. Power of Atty Sept. 4/23
37. Add. party (3) Dec 3 1923
38. Party Added (4) Dec 3 1923
39. Fin. Rej. (R. 132) Mar 23 1926
40. Sug. Claims Jun 11 1926
41. Amendment G June 24, 1926
42. Intf Brief
43. Intf Letter Jul 16 1926
44. Letter Mar 2 1927
45. Access Mar 18 1927
46. Amendment H March 22, 1927
47. Rej Oct 19 1927
48. Access Oct 29, 1927
49. Amendment I Nov. 10, 1927
50. Exr's. Amendment K Dec 29, 1927
51. Notice of Suit Sept 30 1930
52. Notice of Suit Sept 29 1931

THE
JOURNAL
OF
THE
ROYAL
ANTHROPOLOGICAL
INSTITUTE

The latest innovation in the line of spring wheels, known from the Madison Spring Wheel Co., are Wood Grand axioms. Lighter, firmer wheels are made with an unusually large number of spokes, each containing a spring and plunger.

The circuit changes all previous and a central disc which is clamped between the two fixtures, so that the weights are entirely supported by the springs which after a yielding supports in any direction in the shape of the wheel.

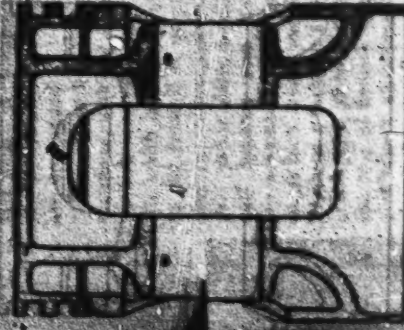
paper plate is protected by large papers which are folded on several sides, making a sliding plate between the outer portion, which is connected directly by the handle, and the inner portion, which is being supported.

The whole mechanism is packed in boxes so that it is well lubricated and ready for use.

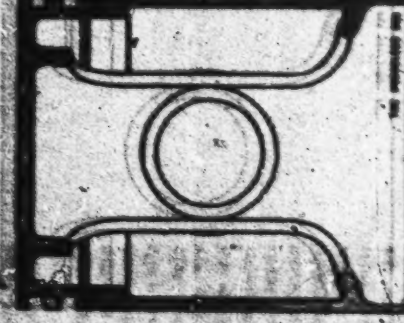
Another work, especially good for
beginners, is "The Art of the
Story" by John Galsworthy. It
is a collection of essays on the
art of the story, and is a very
valuable work for the beginner.

Time Is Money

The following are the latest type of piston and new device in which considerable improvement has been achieved within the last few months. Arrangements have now been made directly for Herschell-Whitman Co., North Tonawanda, N. Y., to manufacture the designs of piston and the rest of other engine features.

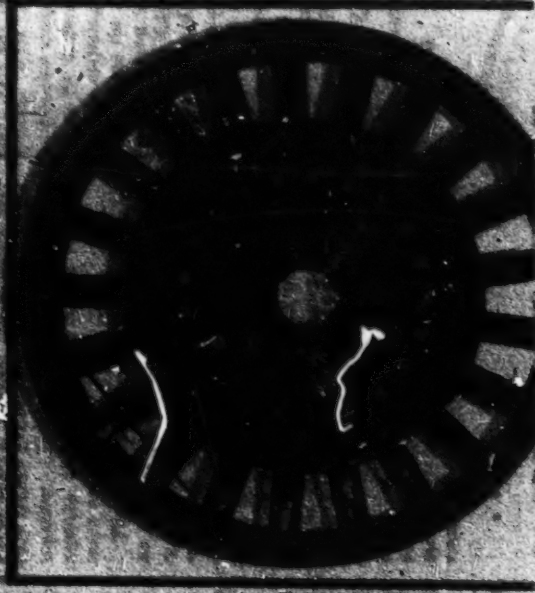


The Chase-11220 - Fusion.



At the same time, the players have mentioned also the parking slots is separated from the club at another purpose of the latter, get they are combined in one unit. Devices this combining the prison pin bosses connect the two parties.

The main advantage of the new type of piston is that the great heat of the piston head is not allowed to follow



DEPARTMENT, BUREAU OF
Page 505 of "The Morning Age" for April 4, 1914.
(Filed January 27, 1924.)

THE UNIVERSITY OF CHICAGO

There are several other things that are being done to help the people of the world. For example, the United Nations is working to help the people of the world to live better lives. The United Nations is also working to help the people of the world to live better lives.

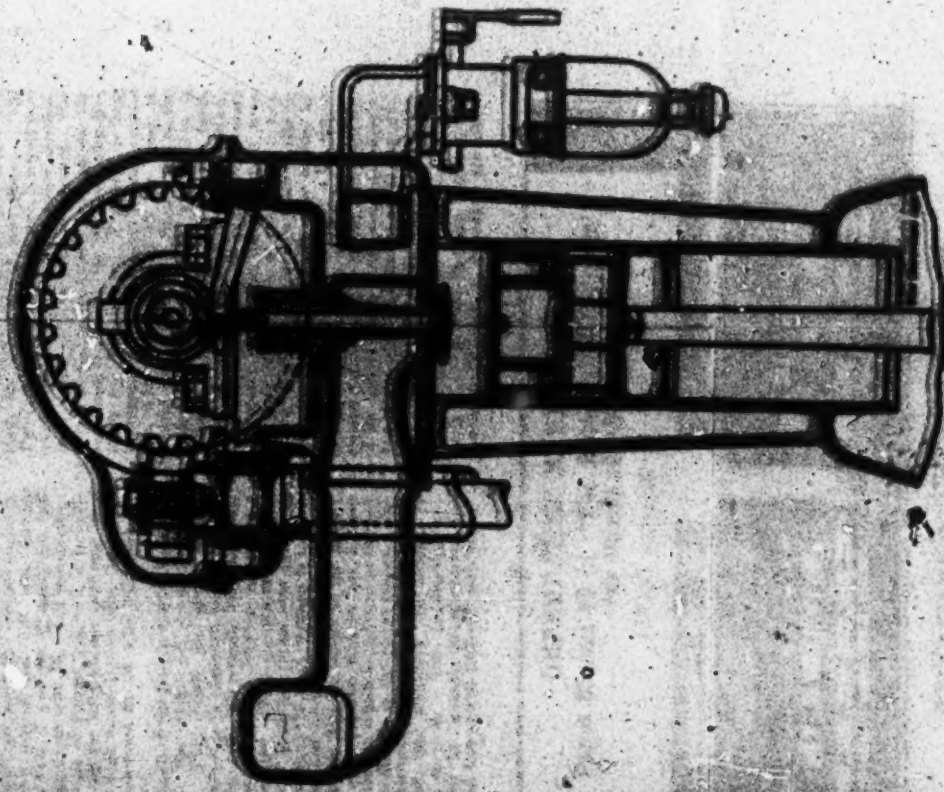
It has been noted that the average life span of a person in a 4-year college with two majors is 65 years, and that a person with one major and two minors lives 67 years. If the average life span of a person with one major and two minors is 67 years, and the average life span of a person with two majors and one minor is 65 years, then the average life span of a person with two majors and two minors is 69 years. In the educational marketplace, the rule holds: one is worth two.

It is said that the shearing of the cranks going on down here is because with ordinary steering the cranks bent. As the planes had a much less, increased weight added to the only obstruction which can be made that is stated to be impossible. A Henschel-Schulze wheel drove a heavy type, with 18-inch planes, pin bolts weights it weighs, while the standard type weighs 60 tons.

THE HOLYMAN 101

THE NEW YORK PUBLIC LIBRARY

Page 1061 of "The Horvath Affair" for December 24, 1913.
(Filed January 27, 1934.)



Good Section of Building with Good Connections

2233

36

THE AUTOMOBILE ENGINEER

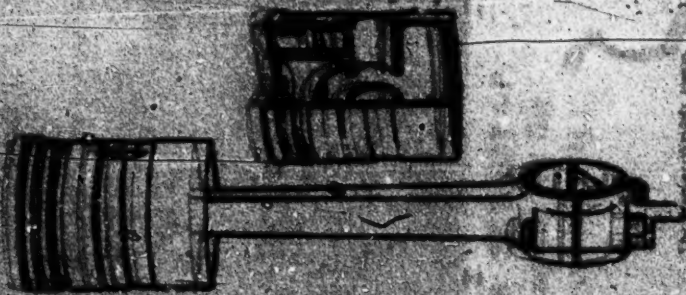
CHAS. L. HILL

DEPENDABLE SERVICE
Listed in all of "The Automobile Engineer"
for March 12, 1914
(First January 27, 1914)

2235

March 1944

THE JOURNAL OF THE



Defendants' Exhibit 4-P

2237



DEFENDANTS' EXHIBIT 4-P
Postal Showing Slaver Car.
(Filed January 27, 1934.)

DEFENDANTS' EXHIBIT

Director of Defendants' Exhibit

The American Society of Mechanical Engineers, Inc.

January 16, 1934

Third Floor, 30 West 44th Street, New York

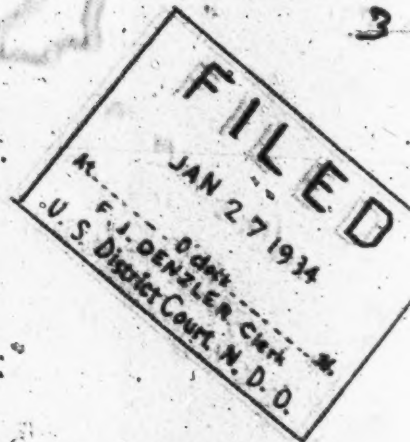
2239

Dye

DEFENDANTS' EXHIBIT 40

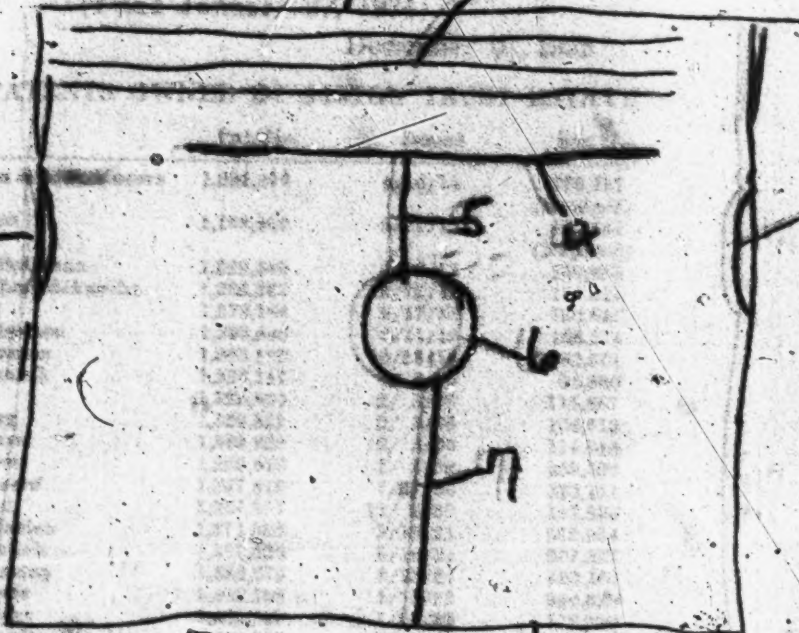
D'Vorky Smith of Mechanical Patent.

(Filed January 27, 1934.)

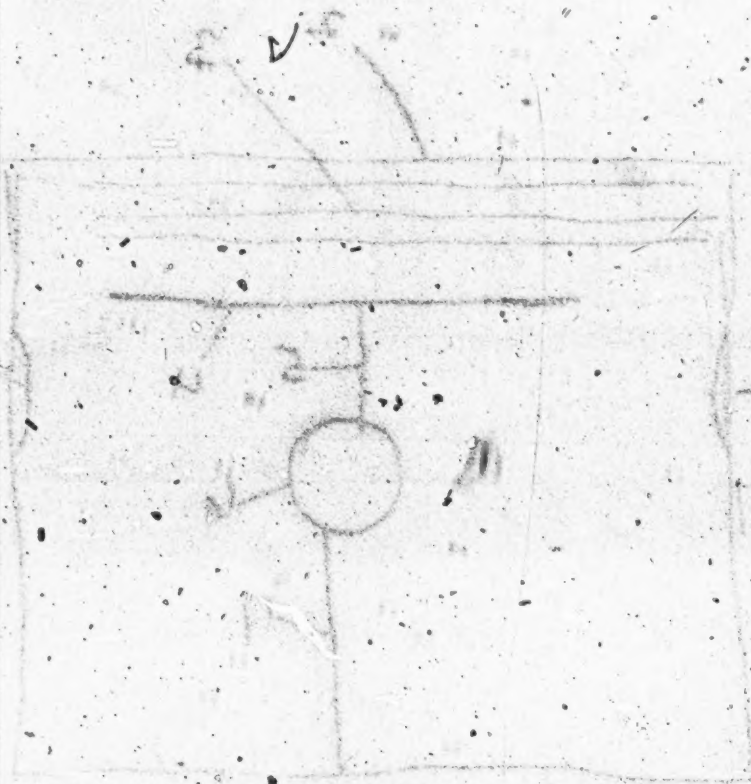


DEFENDANTS' EXHIBIT 41

List of Patents Owned by The Cleveland Spring Company under 'First'



DEPARTMENT OF THE ARMY
100th Cavalry
(1911)



DEFENDANTS' EXHIBIT 4-R.**Digest of Defendants' Exhibit 4-R.**

(The Anamosa Journal, Anamosa, Iowa,
Thursday, June 10, 1915.)

Third Race, 30 Mile Auto Race \$500
(Monckmeier, Staver Six, First)

DEFENDANTS' EXHIBIT 4-X.

List of Patents Owned by The Cleveland Trust
Company under Trust.

(Filed January 27, 1934)

December 10, 1932

PISTON PATENTS OWNED BY PISTON TRUST ESTATE

	Pat. No.	Issued	Ser. No.
EdO. Spillman & L. P. Mooers	1,082,870	4/14/14	779,757
G. E. Fraquist	1,153,902	9/21/15	(Expired) 854,484
Edward O. Spillman	1,229,540	6/12/17	(Expired) 130,823
Victor E. Schmiedeknecht	1,256,265	2/12/18	180,511
J. G. Vincent	1,279,184	9/17/18	796,647
Howard C. Marmen	1,293,846	2/11/19	108,274
Robert B. Wason	1,320,188	10/23/19	82,801
Harold D. Church	1,337,147	1/ 6/20	96,880
E. E. Allene	1,329,820	2/ 3/20	115,887
J. H. Bamberg	1,329,821	2/ 3/20	106,513
F. A. Parkhurst	1,329,822	2/ 3/20	110,844
F. A. Parkhurst	1,329,823	2/ 3/20	259,596
Louis P. Mooers	1,347,819	7/27/20	333,111
J. E. Diamond	1,357,851	11/ 3/20	117,894
Charles A. Marien	1,371,320	3/15/21	302,804
Edward J. Gulick	1,397,528	8/16/21	307,527
Charles A. Marien	1,393,279	8/23/21	420,360
Louis P. Mooers	1,402,308	1/ 3/22	390,823
Louis P. Mooers	1,402,309	1/ 3/22	172,280
Montague Stanley Napier	1,403,580	1/17/22	418,959

	Pat. No.	Issued	Ser. No.
William Guy Berry et al	1,400,000	2/23/22	478,195
Edmund E. Allyn	1,426,133	8/15/22	370,318
F. A. Parkhurst	1,440,540	1/ 2/23	400,304
Reinold M. Howdenhall	Re-12,373	2/23/26	51,529
(Original Pat.	1,473,233		383,519)
Harry J. Hater	1,485,078	2/26/24	554,234
James M. Howe	1,494,453	5/20/24	464,415
Laurence Henry Pomeroy	1,499,073	6/24/24	321,696
Montague Napier	1,525,316	2/ 3/25	419,715
William G. Berry et al	1,551,233	8/25/25	410,264
Harry J. Hater	1,563,025	11/24/25	676,344
Frank Jardine	1,563,194	11/24/25	47,313
Jardine & Jehle	1,580,491	4/13/26	464,371
Allen B. Norton	1,633,185	6/21/27	80,902
George D. Welty	1,638,898	8/16/27	39,676
Howard E. Maynard (1/2 Int.)	1,653,968	1/10/28	434,467
Harry J. Hater	1,654,432	1/17/28	588,473
Gustav R. Keim	1,659,881	2/21/28	470,502
Stephen D. Hartog	1,675,174	6/26/28	53,063
James Edward Diamond	1,695,417	12/18/28	561,997
Harold J. Ness	1,699,621	1/22/29	104,496
Harold J. Ness	1,699,621	1/22/29	100,497
Frank Jardine	1,727,647	9/10/29	100,773
Frank Jardine	1,730,120	10/ 1/29	100,772
Stephen D. Hartog	1,730,885	10/ 8/29	301,169
Stephen D. Hartog	1,732,361	10/22/29	227,705
Jeffrie & Archer	1,732,557	10/22/29	707,968
Frank Jardine	1,741,643	12/31/29	47,234
Wm. C. McCoy	1,757,131	5/ 6/30	234,398
Jehle & Jardine	1,758,444	5/13/30	544,487
Frank Jardine	1,759,508	5/20/30	137,194
Wm. C. McCoy	1,761,140	6/ 3/30	133,909
Wm. C. McCoy	1,761,141	6/ 3/30	143,878
Wm. C. McCoy	1,761,142	6/ 3/30	331,513
Frank Jardine	1,763,523	6/10/30	364,997
(Renewal of Ser. No. 450,808)			
Harry J. Hater	1,764,871	6/17/30	291,427
Frank J. Kent	1,768,008	7/ 1/30	201,600
Harry J. Hater	1,769,835	7/ 1/30	188,736
George D. Welty	1,775,446	9/ 9/30	128,764
Frank Jardine	1,784,291	12/ 9/30	100,771
Stephen D. Hartog	1,794,767	3/ 3/31	467,587
Wm. C. McCoy	1,802,180	4/21/31	400,476
Melbourne A. Beckmann	1,768,815	7/ 1/30	349,130
Melbourne A. Beckmann	1,768,916	7/ 1/30	349,131
Stephen D. Hartog	1,812,696	6/30/31	326,832
Edward J. Gulick	1,815,733	7/21/31	204,061
Martin B. Covert	1,818,307	8/11/31	442,969
Frank Jardine	1,819,906	8/18/31	340,088
Harry J. Hater	Re-18,178	9/ 8/31	275,321
(Original Pat. No. 1,854,482)			
William C. McCoy	1,825,750	10/ 6/31	143,879
G. E. Franquist	1,826,171	10/ 6/31	563,782
Louis P. Mooers	1,826,185	10/ 6/31	649,481
William C. McCoy	1,830,519	11/ 3/31	451,653
Frank Jardine et al	1,835,874	12/ 8/31	19,651
Frank Jardine et al	1,835,875	12/ 8/31	174,202
Stephen D. Hartog	1,842,022	1/19/32	359,137
Stephen D. Hartog	1,842,023	1/19/32	611,969
Frank Jardine	1,847,947	3/ 1/32	312,429
Allen B. Norton	1,853,450	4/12/32	51,748
Gustave E. Franquist	1,872,724	8/23/32	531,942
James E. Diamond	1,874,925	8/30/32	126,110

DEFENDANTS' EXHIBIT 4-Y.

**Bill of Complaint and Answer in Case No. 27-32 in the
U. S. District Court for the Southern District of
New York, The Cleveland Trust Company vs. The
National Piston Company, Inc.**

(Filed January 27, 1934.)

UNITED STATES OF AMERICA,
SOUTHERN DISTRICT OF NEW YORK, ss.

I, CHARLES WEISER, Clerk of the District Court of the United States for the Southern District of New York do hereby certify that the writings annexed to this certificate have been compared with their originals on file and remaining of record in this office; that they are correct transcripts therefrom and of the whole of the said originals.

IN TESTIMONY WHEREOF I have hereunto subscribed my name and affixed the seal of the said Court at the City of New York, in the Southern District of New York, this 27th day of January in the year of our Lord one thousand nine hundred and thirty-three and of the Independence of the United States the One Hundred and fifty-seventh.

CHARLES WEISER,

Clerk.

(Seal)

**IN THE UNITED STATES DISTRICT COURT
IN AND FOR THE SOUTHERN DISTRICT OF NEW YORK**

THE CLEVELAND TRUST COMPANY,
Plaintiff,

vs.

THE NATIONAL PISTON COMPANY,
INCORPORATED,
Defendant.

In Equity No. 27-32

BILL OF COMPLAINT.

*To the Honorable Judges of the United States District
Court for the Southern District of New York:*

The Cleveland Trust Company, a corporation organized and existing under and by virtue of the laws of the State of Ohio, and having its principal office and place

of business at Cleveland in said State, brings this bill of complaint against The National Piston Company, Incorporated, a corporation organized and existing under and by virtue of the laws of the State of New York, having a regular established place of business at New York City in the State of New York, within the aforesaid Southern District of New York, and thereupon your Orator complains and says:

I.

That your Orator, The Cleveland Trust Company, is a corporation duly organized and existing under and by virtue of the laws of the State of Ohio, and has its principal office and place of business in Cleveland in said State.

II.

That the defendant, The National Piston Company, Incorporated, is a corporation duly organized and existing under and by virtue of the laws of the State of New York, and has a regular established place of business and principal office at New York City in the State of New York, within the aforesaid Southern Judicial District of New York, where it has committed and is threatening to continue to commit the acts of infringement hereinafter set forth.

III.

That the jurisdiction of the court in this cause is based upon the fact that the suit is one touching patent rights, and is brought to restrain infringement of certain Letters Patent owned by the plaintiff, and for an accounting of profits and damages arising from past infringement of said Letters Patent by the defendant.

IV.

That heretofore and before the 18th day of July, 1913, Edward O. Spillman and Louis P. Mooers, citizens of the United States, residing in the County of Niagara, State of New York, were the original, first and joint inventors of certain new and useful improvements in Pistons for Explosion Engines or Motors, fully described in Letters Patent of the United States No. 1,092,870, hereinafter mentioned, which invention or improvement was not known or used by others in this country, or pat-

ented or described in any printed publication in this or any foreign country, prior to their invention thereof, or more than two years prior to their application for said Letters Patent, and had not been in public use or on sale in this country for more than two years prior to said application, and had not been abandoned to the public, and had not been patented or caused to be patented by them or their legal representatives or assigns in any foreign country upon an application filed more than twelve months prior to the filing of their application for Letters Patent of the United States therefor; that the said Edward O. Spillman and Louis P. Mooers made due application to the Commissioner of Patents of the United States in accordance with the then existing acts of Congress, for Letters Patent of the United States for said invention or improvement, and having in all respects complied with the conditions and requisitions of said acts of Congress, on the 14th day of April, 1914, Letters Patent of the United States No. 1,092,870, signed, sealed and executed in due form of law for the said invention or improvement were issued and delivered unto said Edward O. Spillman and Louis P. Mooers, whereby there was secured unto them, their successors and assigns for the term of seventeen years from the said 14th day of April, 1914, the sole and exclusive right to make, use and sell to others to be used, throughout the United States and the territories thereof the aforesaid invention or improvement, all as by said Letters Patent, or a duly authenticated copy thereof in Court to be produced and shown unto your Honors, will more fully and at large appear.

V.

That subsequent to the granting of the aforesaid Letters Patent The Herschel Spillman Company, a corporation of the State of New York, acquired an interest in said invention and Letters Patent from the said Edward O. Spillman, and that thereafter and on or about the 16th day of June, 1916, the said Edward O. Spillman and the said The Herschel Spillman Company, by an instrument in writing duly executed and delivered and duly recorded in the Patent Office of the United States, in Liber R-101, page 1 of the Transfers of Patents, assigned, and transferred an undivided one-half of the entire right, title and interest in and to said Letters Patent No. 1,092,870 to one George B. Pitts; and that there-

after and on or about the 3rd day of July, 1919, the said George B. Pitts by an instrument in writing assigned said undivided one-half of the entire right, title and interest in, to and under said Letters Patent No. 1,092,870, to your Orator, The Cleveland Trust Company, which assignment was duly recorded on the 28th day of July, 1919, in Liber Q-107, page 336 of the Transfers of Patents; and that the said Louis P. Mooers on the 10th day of July, 1919, by an instrument in writing assigned an undivided one-half of the entire right, title and interest in, to and under said Letters Patent No. 1,092,870 to your Orator, The Cleveland Trust Company, which assignment was duly recorded on the 28th day of July, 1919, in Liber Q-107, page 339 of the Transfers of Patents; whereby your Orator became vested with and holds the entire right, title and interest in, to and under said Letters Patent No. 1,092,870, as will more fully and at large appear upon production in Court of the assignments aforesaid.

VI.

That heretofore and before the 22nd day of October, 1913 Jesse G. Vincent, a citizen of the United States, and resident of Detroit, Wayne County, State of Michigan, was the original, first and true inventor of certain new and useful improvements in Pistons, fully described in Letters Patent of the United States No. 1,279,184, hereinafter mentioned, which invention or improvement was not known or used by others in this country, or patented or described in any printed publication in this or any foreign country, prior to his invention thereof, or more than two years prior to his application for said Letters Patent; had not been in public use or on sale in this country for more than two years prior to said application; had not been abandoned to the public, and had not been patented or caused to be patented by him or his legal representatives or assigns in any foreign country upon an application filed more than twelve months prior to the filing of his application for Letters Patent of the United States therefor; that the said Jesse G. Vincent made due application to the Commissioner of Patents of the United States in accordance with the then existing acts of Congress, for Letters Patent of the United States for said invention and improvement, and by an instrument in writing duly executed and delivered by him, and duly recorded in the Patent Office of

the United States, assigned and transferred the entire right, title and interest in and to said invention and improvement and in and to said application for Letters Patent to Packard Motor Car Company, a corporation organized and existing under the laws of the State of Michigan, and authorized and requested the Commissioner of Patents to issue the Letters Patent upon said application and for the said invention and improvement to the said Packard Motor Car Company, and having in all respects complied with the conditions and requisitions of said acts of Congress, on the 7th day of September, 1918, Letters Patent of the United States No. 1,279,184, signed, sealed and executed in due form of law for the said invention and improvement were issued and delivered unto said Packard Motor Car Company, as assignee of the said Jesse G. Vincent, whereby there was secured unto said Packard Motor Car Company and its successors and assigns for the term of seventeen years from the said 17th day of September, 1918, the sole and exclusive right to make, use and vend to others to be used, throughout the United States and the territories thereof the aforesaid invention and improvement; all as by said Letters Patent, or a duly authenticated copy thereof in Court to be produced and shown unto your Honors, will more fully and at large appear.

VII.

That subsequent to the granting of the aforesaid Letters Patent, namely on or about the 11th day of September, 1922, by an instrument in writing said Packard Motor Car Company assigned the entire right, title and interest in, to and under said Letters Patent of the United States No. 1,279,184 to your Orator, The Cleveland Trust Company, which assignment was duly recorded on the 18th day of September, 1922, in Liber W-117, page 44 of the Transfers of Patents; whereby your Orator became vested with and holds the entire right, title and interest in, to and under said Letters Patent No. 1,279,184 as will more fully and at large appear upon production in Court of the assignment aforesaid.

VIII.

That heretofore and before the 11th day of May, 1916, Harold D. Church, a citizen of the United States and a resident of Detroit, Wayne County, State of Michi-

gan, was the original, first and true inventor of certain new and useful improvements in Hydro-Carbon Motor, fully described in Letters Patent of the United States No. 1,327,147, hereinafter mentioned, which invention or improvement was not known or used by others in this country, or patented or described in any printed publication in this or any foreign country, prior to his invention thereof, or more than two years prior to his application for said Letters Patent, and had not been in public use or on sale in this country for more than two years prior to said application; had not been abandoned to the public; and had not been patented or caused to be patented by him or his legal representatives or assigns in any foreign country upon an application filed more than twelve months prior to the filing of his application for Letters Patent in the United States therefor; that the said Harold D. Church made due application to the Commissioner of Patents of the United States in accordance with the then existing acts of Congress for Letters Patent of the United States for said invention and improvement, and by an instrument in writing duly executed and delivered by him, and duly recorded in the Patent Office of the United States, assigned and transferred the entire right, title and interest in and to said invention and improvement and in and to said application for Letters Patent to Packard Motor Car Company, a corporation organized and existing under the laws of the State of Michigan, and authorized and requested the Commissioner of Patents to issue the Letters Patent upon said application and for said invention and improvement to the said Packard Motor Car Company, and having in all respects complied with the conditions and requisitions of said acts of Congress, on the 6th day of January, 1920, Letters Patent of the United States No. 1,327,147, signed, sealed and executed in due form of law for the said invention and improvement were issued and delivered unto said Packard Motor Car Company, as assignee of said Harold D. Church, whereby there was secured unto said Packard Motor Car Company and its successors and assigns for the term of seventeen years from the 6th day of January, 1920, the sole and exclusive right to make, use and vend to others to use throughout the United States and the territories thereof, the aforesaid invention and improvement; all as by said Letters Patent, or a duly authenticated copy thereof in Court to be produced and shown unto your Honors, will more fully and at large appear.

IX.

That subsequent to the granting of the aforesaid Letters Patent, namely on or about the 11th day of September, 1922, by an instrument in writing, said Packard Motor Car Company assigned the entire right, title and interest in, to and under said Letters Patent of the United States No. 1,327,147 to your Orator, The Cleveland Trust Company, which assignment was duly recorded on the 18th day of September, 1922, in Liber C-117 page 64 of the Transfers of Patents; whereby your Orator became vested with and holds the entire right, title and interest in, to and under said Letters Patent No. 1,327,147, as will more fully and at large appear upon production in Court of the assignment aforesaid.

X.

That heretofore and before the 2nd day of June, 1917, Louis P. Mooers, a citizen of the United States, residing at Cincinnati, Hamilton County, State of Ohio, was the original, first and true inventor of certain new and useful improvements in Pistons for Internal Combustion Motors, fully described in Letters Patent of the United States No. 1,402,309, hereinafter mentioned, which invention or improvement was not known or used by others in this country, or patented or described in any printed publication in this or any foreign country, prior to his invention thereof, or more than two years prior to his application for said Letters Patent, had not been in public use or on sale in this country for more than two years prior to said application; had not been abandoned to the public, and had not been patented or caused to be patented by him or his legal representatives or assigns in any foreign country upon an application filed more than twelve months prior to the filing of his application for Letters Patent of the United States, therefor; that the said Louis P. Mooers made due application to the Commissioner of Patents of the United States in accordance with the then existing acts of Congress, for Letters Patent of the United States for said invention and improvement and by an instrument in writing duly executed and delivered by him and duly recorded in the Patent Office of the United States in Liber P-103 page 133 of the Transfers of Patents, assigned an undivided one half of the entire right, title and interest in and to said invention and improvement and in and to said application for Letters Patent to George B. Pitts of Cleveland, Ohio, and

authorized and requested the Commissioner of Patents to issue the Letters Patent upon said application and for said invention and improvement to said George B. Pitts and Louis P. Mooers; and thereafter, by instruments in writing duly executed and delivered and duly recorded in the Patent Office of the United States, the said George B. Pitts and Louis P. Mooers assigned and transferred unto your Orator, The Cleveland Trust Company, the entire right, title and interest in and to said invention and application for Letters Patent, and authorized and requested the Commissioner of Patents to issue the Letters Patent upon said application and for said invention to said The Cleveland Trust Company, pursuant to which said assignment the aforesaid Letters Patent No. 1,402,309, signed, sealed and executed in due form of law, for the said invention and improvement, were issued and delivered unto your Orator, The Cleveland Trust Company, on the 3rd day of January, 1922, whereby there was secured unto your Orator and its successors and assigns, for the term of seventeen years from the said 3rd day of January, 1922, the sole and exclusive right to make, use and sell to others to be used, throughout the United States and the territories thereof, the aforesaid invention and improvement, all as by said Letters Patent or a duly authenticated copy thereof, in court to be produced and shown unto your Honors, will more fully and at large appear.

XI.

And your Orator further avers and shows unto your Honors that the said defendant, The National Piston Company, Incorporated, as your Orator is informed and believes, having due and timely notice of said Letters Patent of the United States, and each of them, and well knowing the premises and the exclusive rights and privileges as aforesaid secured to your Orator by the said Letters Patent, but contriving and planning to injure your Orator and deprive it of the profits, benefits and advantages which would have otherwise accrued to your Orator from the said Letters Patent, has been since the grant of each of the Letters Patent aforesaid, and still is in the said Southern District of New York, unlawfully, wrongfully, and without license or permission of your Orator, manufacturing or causing to be manufactured, using and selling Pistons constructed according to and containing the aforesaid inventions, discoveries or improvements patented by said Letters Patent in vio-

lation and infringement of the aforesaid exclusive rights and privileges of your Orator, and has threatened to continue such infringing acts by making, using and selling Pistons in violation and infringement of your Orator's exclusive rights and privileges under said Letters Patent and to your Orator's great and irreparable loss and damage and contrary to equity and good conscience and to the manifest injury of your Orator in the premises.

XII.

That your Orator has caused notice to be given to the defendant of this aforesaid infringement of said Letters Patent, and each of them, and of the rights of your Orator in the premises, and requested the defendant to desist from such infringement; but that it has disregarded said notice and request and is continuing such infringement of said Letters Patent as aforesaid;

And forasmuch as your Orator can have no adequate relief except in this Court, and to the end therefor that the defendant may, if it can, shew cause why your Orator should not have the relief hereinafter prayed, and may make full disclosure of all the matters aforesaid, your Orator prays

1. That the said defendant, The National Piston Company, Incorporated, may be required to appear and ~~make~~ full, true, direct and perfect answer to the matters heretofore stated and charged, but not under oath, answer under oath being expressly waived.

2. That the said defendant, The National Piston Company, Incorporated, may be compelled to account for and pay over to your Orator the gains and profits which it has made and received, or shall have made and received, from said violation of your Orator's rights and from said infringement of the aforesaid Letters Patent, and each of them, and that your Honors may assess or cause to be assessed under your direction, in addition to the gains and profits to be accounted for by the defendant, the damages your Orator has sustained by reason of said infringement, and that your Honors may increase the actual damages to a sum equal to three times the amount of said assessment under the circumstances of the willful and unjust infringement of your Orator's Letters Patent by the said defendants as aforesaid.

3. That your Honor may grant unto your Orator a preliminary and also a perpetual writ of injunction, issuing out of and under the seal of this Honorable Court,

and directed to the said The National Piston Company, Incorporated, and enjoining it and its officers, agents, servants, attorneys and workmen and each of them, from making, using or vending or causing to be made, used or vended, or in any wise counterfeiting or imitating the inventions and improvements described and claimed in the aforesaid Letters Patent, or any part thereof, and from making, using or vending to others to be used or causing to be made, used or vended to others to be used, any Pistons, or any parts thereof, made in accordance with said Letters Patent, or any parts thereof, or like or similar to Pistons and parts thereof which the defendant has heretofore made and vended to others in violation of the rights of your Orator as aforesaid, and from any manner infringing said Letters Patent, or any of them, and that the Pistons and parts thereof embodying said patented inventions and improvements, or any part thereof, now in possession of the defendant or its agents or representatives, may be destroyed or delivered up to your Orator for that purpose.

4. That the said defendant, The National Piston Company, Incorporated, may be decreed to pay the costs of this suit, and that your Orator may have such other and further relief as the equity of the case may require and to your Honors may seem meet.

And may it please your Honors to grant unto your Orator a writ of injunction conformable to the prayer of this bill, and also a writ of subpoena of the United States of America, directed to the said The National Piston Company, Incorporated, commanding it to appear and make answer unto this bill of complaint and to abide and conform to such order and decree in the premises as to the Court shall seem meet and be required by the principles of equity and good conscience.

And your Orator will ever pray.

THE CLEVELAND TRUST COMPANY,

By F. H. HOBSON,

Vice-President.

Attest:

A. J. PERFLER,

Ass't Trust Officer.

ROUNDS, SCHURMAN & DWIGHT,

Solicitors for Complainant.

EDWARD RECTOR,

-Of Counsel.

STATE OF OHIO,
COUNTY OF CUYAHOGA, SS.

On this 17th day of July, 1923, before the undersigned, a Notary Public within and for the County and State aforesaid, personally appeared F. H. Hosson and made oath that he is the Vice President of The Cleveland Trust Company, the above named complainant, that he has read the foregoing Bill of Complaint, and knows the contents thereof, and that the same is true, except as to those matters stated on information and belief, and as to those matters he believes it to be true.

ROY F. HAGGETT,

Notary Public.

(Seal)

IN THE UNITED STATES DISTRICT COURT
IN AND FOR THE SOUTHERN DISTRICT OF NEW YORK.

THE CLEVELAND TRUST COMPANY,

Plaintiff,

VS.

THE NATIONAL PISTON COMPANY,
INCORPORATED,

Defendant.

IN EQUITY
No. 27-32.

A N S W E R.

Defendant for its answer to the Bill of Complaint
says:

I.

Defendant admits the allegation of Paragraph II of
the Complaint, except that defendant denies that it has
committed or is threatening to continue to commit any of
the acts of infringement alleged in said complaint.

II.

Defendant denies each and every of the allegations
of Paragraph IV of the Complaint, except that defend-
ant admits that Letters Patent No. 1,092,870 were granted
on the 14th day of April, 1914 to Edward O. Spillman and
Louis P. Mooers.

III.

Defendant denies any knowledge or information
thereof sufficient to form a belief as to each and every
of the allegations contained in Paragraphs V, VII, and
IX of the Complaint herein.

IV.

Defendant denies each and every of the allegations
of Paragraph VI of the Complaint, except that defendant
admits that Letters Patent No. 1,279,184 were granted
on the 7th day of September, 1918 to Packard Motor Car
Company.

V.

Defendant denies each and every of the allegations of Paragraph VIII of the Complaint, except that defendant admits that Letters Patent No. 1,327,147 were granted on the 6th day of January, 1920 to Packard Motor Car Company.

VI.

Defendant denies each and every of the allegations of Paragraph X of the Complaint herein, except that defendant admits that Letters Patent No. 1,402,309 were granted on the 3rd day of January, 1922 to plaintiff, The Cleveland Trust Company.

VII.

Defendant denies each and every of the allegations of Paragraph XI of the Complaint herein, except that defendant admits notice of said Letters Patent of the United States and each of them.

VIII.

Defendant denies each and every of the allegations of Paragraph XII of the Complaint herein, except that defendant admits that plaintiff has caused notice to be given to the defendant of alleged infringement of said Letters Patent and each of them.

IX.

Upon information and belief defendant avers that said Letters Patent Nos. 1,092,870, 1,279,184, 1,327,147 and 1,402,309 are each invalid and void because the alleged invention described and claimed therein or substantial and material parts thereof had been patented and described in the following United States and foreign Letters Patent and printed publications prior to the alleged invention or discovery thereof by the alleged respective inventors named in each of said patents, and were known to and used by the patentees of said United States letters patent, whose residences are stated in their respective patents, at their said places of residences and elsewhere:

UNITED STATES PATENTS.

45,989,	Jan. 24, 1865,	Fuller,
258,884,	June 6, 1882,	Burritt,
289,019,	Nov. 27, 1883,	Nash,
289,693,	Dec. 4, 1883,	Nash,
305,467,	Sept. 23, 1884,	Murray, Jr.,
452,101,	May 12, 1891,	Ellithorpe,
511,651,	Dec. 26, 1893,	Roots,
548,772,	Oct. 29, 1895,	Bridges,
593,034,	Nov. 2, 1897,	Spacke,
627,707,	June 27, 1899,	Price,
630,838,	Aug. 15, 1899,	Anderson, et al.
677,135,	June 25, 1901,	Imler,
683,469,	Oct. 1, 1901,	Imler,
700,309,	May 20, 1902,	Ebbe,
753,527,	Mar. 1, 1904,	Stadel,
779,385,	Jan. 3, 1905,	Valentine,
920,165,	May 4, 1909,	Mareil,
975,301,	Nov. 8, 1910,	Tabot,
1,031,212,	July 2, 1912,	Van Bever,
1,061,756,	May 13, 1913,	Knight,
1,058,790,	Feb. 18, 1913,	Derby, et al.

FOREIGN PATENTS.

British,	17,754,	Aug. 17, 1898,	Pinkney,
German,	118,729,	Jan. 18, 1900,	Stuber,
British,	4,708,	Feb. 26, 1907,	Cockerill,
British,	11,518,	May 16, 1907,	Lake,
British,	17,256,	July 27, 1907,	Pugh,
German,	216,866,	Feb. 20, 1908,	Farsky,
British,	23,484,	Nov. 3, 1908,	Barth,
British,	11,077,	May 9, 1912,	Knowles,
German,	266,053,	Jan. 21, 1913,	Linnenbrugge.

X.

On information and belief defendant avers that said Letters Patent Nos. 1,327,147 and 1,403,309 are each invalid and void because the alleged invention described and claimed therein or substantial and material parts thereof had been patented and described in the following United States and foreign letters patent and printed publications prior to the alleged invention or discovery thereof by the respective alleged inventors, and were known to and used by the patentees of said United States Letters Patent, whose residences are stated in their respective patents, at their said places of residence and elsewhere:

UNITED STATES PATENTS.

1,129,393, Feb. 23, 1915, Huff,
1,139,396, May 11, 1915, Barthel,
1,160,727, Nov. 16, 1915, Lemp.

FOREIGN PATENTS

French, 468,595, July 9, 1914, Societe Anonyme,
British, 6,015, March 10, 1914, Auston Motor Co.
French, 480,644, Aug. 31, 1916, Societe Anonyme.

XI.

Upon information and belief defendant avers that said Letters Patent No. 1,402,309 are invalid and void because the alleged invention described and claimed therein or substantial and material parts thereof had been patented and described in the following United States and foreign letters patent and printed publications prior to the alleged invention or discovery thereof by said Louis P. Mooers, and were known to and used by the patentees of said United States letters patent, whose residences are stated in their respective patents, at their said places of residence and elsewhere:

U. S. Patent No. 1,114,229, Oct. 20, 1914, M. G. Chandler,
French " " 480,644, Jan. 10, 1916, Delaney.

XII.

Upon information and belief defendant avers that said Letters Patent Nos. 1,092,870, 1,279,184, 1,327,147 and 1,402,309 are invalid and void because the alleged inventions and improvements attempted to be patented thereby did not at the respective dates of the applications for said letters patent, or at the respective times of the said alleged invention thereof, involve or require invention; that, in view of the state of the art as it existed at that time, it did not involve the exercise of the inventive faculty to devise and produce the apparatus described and claimed respectively in said letters patent but merely the exercise of mechanical skill, and that none of the alleged inventions of said letters patent produced any new and useful result not already known to others and in common use by others skilled in the art prior to the respective dates of application for said letters patent and prior to the alleged invention thereof by the respective applications for said letters patent.

XIII.

Upon information and belief defendant avers that the alleged inventions respectively said to be described and claimed in said Letters Patent Nos. 1,092,870, 1,279,184, 1,327,147 and 1,402,309 were subsequent to the grant of said respective letters patent and each of them, had been prior thereto, notoriously and continuously and openly used by the public, including this defendant, with full knowledge of the plaintiff and in violation of its alleged rights under said Letters Patent Nos. 1,092,870, 1,279,184, 1,327,147 and 1,402,309, but without interference by it from the date of the grant of said respective letters patent to a time just prior to the filing of the complaint herein, by which conduct plaintiff and its predecessors in title to said Letters Patent Nos. 1,092,870, 1,279,184, 1,327,147 and 1,402,309, acquiesced in the use now alleged to be an infringement and abandoned the inventions to the public and led the trade and the public generally into the belief that the said alleged inventions had been abandoned to the public; and defendant alleges that plaintiff has been guilty of laches in the premises and that the complaint herein is without equity and that plaintiff is estopped from now asserting its alleged rights in said Letters Patent Nos. 1,092,870, 1,279,184, 1,327,147 and 1,402,309, and each of them, against this defendant, particularly as to any acts of infringement prior to the filing of the bill of complaint herein.

WHEREFORE this defendant prays that the bill of complaint be dismissed with costs.

GIFFORD, BULL & SCULL,
Solicitors for Defendant.

GEORGE F. SCULL,
Of Counsel.

September 15, 1923.

IN THE UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK.

THE CLEVELAND TRUST COMPANY

vs.

THE NATIONAL PISTON COMPANY,
INC.

} IN EQUITY No. 27-32.

FINAL DECREE.

This cause having come on to be heard at this term upon the consent of the parties to the entry of this decree and thereupon in consideration thereof, it is ordered, adjudged and decreed as follows:

FIRST: That Letters Patent to Edward O. Spillman and Louis P. Mooers, No. 1,092,870, April 14th, 1914 for Pistons for Explosion Engines or Motors is good and valid in law;

SECOND: That the said Edward O. Spillman and Louis P. Mooers are the true and original inventors of the invention and improvements described and claimed in said Letters Patent;

THIRD: That Letters Patent to Jesse G. Vincent No. 1,279,184, Sept. 17, 1918, for Pistons is good and valid in law;

FOURTH: That the said Jesse G. Vincent is the true and original inventor of the inventions and improvements described in said Letters Patent;

FIFTH: That Letters Patent to Harold D. Church, No. 1,327,147, Jan. 6th, 1920, for Hydro-Carbon Motor is good and valid in law;

SIXTH: That the said Harold D. Church is the true and original inventor of the inventions and improvements described in said Letters Patent;

SEVENTH: That Letters Patent to Louis P. Mooers, No. 1,402,309, Jan. 3rd, 1922, for Pistons for Internal Combustion Motors is good and valid in law;

EIGHTH: That the said Louis P. Mooers is the true and original inventor of the inventions and improvements described in said Letters Patent;

NINTH: That the said The Cleveland Trust Company, the Plaintiff, is the lawful owner of said patents and each of them;

TENTH: That the Defendant has infringed upon the said Letters Patent, and each of them, and upon the exclusive rights of the Plaintiff under the same by the manufacture, use and sale of Pistons.

ELEVENTH: Accounting having been waived, no accounting is ordered.

TWELFTH: That a perpetual injunction issue out of and under the seal of this court directed to the said Defendant, its associates, directors, officers, attorneys, clerks, agents, servants, workmen and others employed enjoining and restricting them and each of them, from directly or indirectly making or causing to be made, using or causing to be used or vending to others to be used in any manner, any article, device, apparatus or piston containing, embodying or employing the said inventions or improvements, or any of them covered by the said Letters Patent, or of any piston capable of or adapted to be used in infringement of said patents, or either of them, or from infringing upon or violating the said Letters Patent or either of them in any way whatsoever without the license of the owner or owners present or future of said patents.

THIRTEENTH: No costs are taxed.

FOURTEENTH: The parties having waived appeal, no petition for appeal will be entertained and no order for appeal will be allowed.

F. A. WINSLOW,

United States District Judge.

We consent to the entry of the above decree.

EDWARD R. ALEXANDER,

Counsel for Plaintiff.

GIFFORD & SCULL,

Counsel for Defendant.

DEFENDANTS' EXHIBIT 4-Z.

Bill of Complaint in Case No. 535 in the United States District Court for the Eastern District of Michigan, The Cleveland Trust Company vs. E. C. Long Piston Company and E. C. Long.

(Filed January 27, 1934.)

**IN THE UNITED STATES DISTRICT COURT
IN AND FOR THE EASTERN DISTRICT OF MICHIGAN.**

THE CLEVELAND TRUST COMPANY,
Plaintiff,

vs.

**E. C. LONG PISTON COMPANY and
E. C. LONG,**
Defendants.

**IN EQUITY
No. 535.**

BILL OF COMPLAINT.

To the Honorable Judges of the United States District Court for the Eastern District of Michigan:

The Cleveland Trust Company, a corporation organized and existing under and by virtue of the laws of the State of Ohio, and having its principal office and place of business at Cleveland in said State, brings this bill of complaint against E. C. Long Piston Company, a corporation organized and existing under and by virtue of the laws of the State of Michigan, and E. C. Long, a resident of Detroit, Michigan and a citizen of said State, both having a regular, established and joint place of business at Detroit in the State of Michigan, within the fore-said Eastern District of Michigan, and therein in your Orator complains and says:

I.

That your Orator, The Cleveland Trust Company, is a corporation duly organized and existing under and by virtue of the laws of the State of Ohio, and has its principal office and place of business in Cleveland in said State.

II.

That the defendant, E. C. Long Piston Company, is a corporation duly organized and existing under and by

virtue of the laws of the State of Michigan, and the defendant, E. C. Long, is a resident and citizen of the State of Michigan, and both have a regular, established and joint place of business and principal office at Detroit in the State of Michigan, within the aforesaid Eastern Judicial District of Michigan, where they, and each of them, have committed the acts of infringement herein-after set forth.

III.

That the jurisdiction of the Court in this cause is based upon the fact that the suit is one touching patent rights, and is brought to restrain infringement of certain Letters Patent owned by the plaintiff, and for an accounting of profits and damages arising from past infringement of said Letters Patent by the defendants.

IV.

That heretofore and before the 18th day of July, 1913, Edward O. Spillman and Louis P. Mooers, citizens of the United States, residing in the County of Niagara, State of New York, were the original, first and joint inventors of certain new and useful improvements in Pistons for Explosion Engines or Motors, fully described in Letters Patent of the United States No. 1,092,870, hereinafter mentioned, which invention or improvement was not known or used by others in this country, or patented or described in any printed publication in this or any foreign country, prior to their invention thereof, or more than two years prior to their application for said Letters Patent, and had not been in public use or on sale in this country for more than two years prior to said application, and had not been abandoned to the public, and had not been patented or caused to be patented by them or their legal representatives or assigns in any foreign country upon an application filed more than twelve months prior to the filing of their application for Letters Patent of the United States therefor; that the said Edward O. Spillman and Louis P. Mooers made due application to the Commissioner of Patents of the United States in accordance with the then existing acts of Congress, for Letters Patent of the United States for said invention or improvement, and having in all respects complied with the conditions and requisitions of said acts of Congress, on the 14th day of April, 1914, Letters Patent of the

United States No. 1,092,870, signed, sealed and executed in due form of law, for the said invention or improvement were issued and delivered unto said Edward O. Spillman and Louis P. Mooers, whereby there was secured unto them, their successors and assigns for the term of seventeen years from the said 14th day of April, 1914, the sole and exclusive right to make, use and sell to others to be used, throughout the United States and the territories thereof the aforesaid invention or improvement, all as by said Letters Patent, or a duly authenticated copy thereof in Court to be produced and shown unto your Honor, will more fully and at large appear.

V.

That subsequent to the granting of the aforesaid Letters Patent, namely, on or about the 16th day of June, 1916, by an instrument in writing, one George B. Pitts acquired from said Edward O. Spillman and The Herschel Spillman Company, a corporation of the State of New York, the undivided one half of the entire right and interest in, to and under said Letters Patent of the United States No. 1,092,870, said assignment having been duly recorded on the 5th day of September, 1916 in Liber R-101, page 1 of the Transfers of Patents; that thereafter and on or about the 3rd day of July, 1919 the said George B. Pitts by an instrument in writing assigned said undivided one half of the entire right, title and interest in, to and under said Letters Patent No. 1,092,870, to your Orator, The Cleveland Trust Company, which assignment was duly recorded on the 28th day of July, 1919 in Liber Q-107, page 336 of the Transfers of Patents; and that the said Louis P. Mooers on the 10th day of July, 1919, by an instrument in writing assigned the undivided one half of the entire right, title and interest in, to and under said Letters Patent No. 1,092,870 to your Orator, The Cleveland Trust Company, which assignment was duly recorded on the 28th day of July, 1919, in Liber Q-107, page 339 of the Transfers of Patents; whereby your Orator became vested with and holds the entire right, title and interest in, to and under said Letters Patent No. 1,092,870, as will more fully and at large appear upon production in Court of the assignments aforesaid.

VI.

That heretofore and before the 22nd day of October, 1913, Jesse G. Vincent, a citizen of the United States, and resident of Detroit, Wayne County, State of Michigan, was the original, first and true inventor of certain new and useful improvements in Pistons, fully described in Letters Patent of the United States No. 1,279,184, hereinafter mentioned, which invention or improvement was not known or used by others in this country, or patented or described in any printed publication in this or any foreign country, prior to his invention thereof, or more than two years prior to his application for said Letters Patent; had not been in public use or on sale in this country for more than two years prior to said application; had not been abandoned to the public, and had not been patented or caused to be patented by him or his legal representatives or assigns in any foreign country upon an application filed more than twelve months prior to the filing of his application for Letters Patent of the United States therefor; that the said Jesse G. Vincent made due application to the Commissioner of Patents of the United States in accordance with the then existing acts of Congress, for Letters Patent of the United States for said invention and improvement, and by an instrument in writing duly executed and delivered by him, and duly recorded in the Patent Office of the United States, assigned and transferred the entire right, title and interest in and to said invention and improvement and in and to said application for Letters Patent, to Packard Motor Car Company, a corporation organized and existing under the laws of the State of Michigan, and authorized and requested the Commissioner of Patents to issue the Letters Patent upon said application and for the said invention and improvement to the said Packard Motor Car Company, and having in all respects complied with the conditions and requisitions of said acts of Congress, on the 17th day of September, 1913, Letters Patent of the United States No. 1,279,184, signed, sealed and executed in due form of law for the said invention and improvement were issued and delivered unto said Packard Motor Car Company, as assignee of the said Jesse G. Vincent, whereby there was secured unto said Packard Motor Car Company, and its successors and assigns for the term of seventeen years from the said 17th day of September, 1913, the sole and exclusive right to make, use and vend to others to be used, throughout the United States and

the territories thereof, the aforesaid invention and improvement; all as by said Letters Patent, or a duly authenticated copy thereof in Court to be produced and shown unto your Honors, will more fully and at large appear.

VII.

That subsequent to the granting of the aforesaid Letters Patent, namely on or about the 11th day of September, 1922, by an instrument in writing said Packard Motor Car Company assigned the entire right, title and interest in, to and under said Letters Patent of the United States No. 1,279,184 to your Orator, The Cleveland Trust Company, which assignment was duly recorded on the 18th day of September, 1922, in Liber W-117 page 44 of the Transfers of Patents; whereby your Orator became vested with and holds the entire right, title and interest in, to and under said Letters Patent No. 1,279,184, as will more fully and at large appear upon production in Court of the assignment aforesaid.

VIII.

That heretofore and before the 11th day of May, 1916, Harold D. Church, a citizen of the United States and a resident of Detroit, Wayne County, State of Michigan, was the original, first and true inventor of certain new and useful improvements in Hydro-Carbon Motor, fully described in Letters Patent of the United States No. 1,337,147, hereinafter mentioned, which invention or improvement was not known or used by others in this country, or patented or described in any printed publication in this or any foreign country, prior to his invention thereof, or more than two years prior to his application for said Letters Patent, and had not been in public use or on sale in this country for more than two years prior to said application; had not been abandoned to the public; and had not been patented or caused to be patented by him or his legal representatives or assigns in any foreign country upon an application filed more than twelve months prior to the filing of his application for Letters Patent in the United States therefor; that the said Harold D. Church made due application to the Commissioner of Patents of the United States in accordance with the then existing Acts of Congress, for Letters Patent of the United States for said invention and improvement, and by an instrument in writing duly

executed and delivered by him, and duly recorded in the Patent Office of the United States, assigned and transferred the entire right, title and interest in and to said invention and improvement and in and to said application for Letters Patent to Packard Motor Car Company, a corporation organized and existing under the laws of the State of Michigan, and authorized and requested the Commissioner of Patents to issue the Letters Patent upon said application and for said invention and improvement to the said Packard Motor Car Company, and having in all respects complied with the conditions and requisitions of said Acts of Congress, on the 6th day of January, 1920 Letters Patent of the United States No. 1,327,147, signed, sealed and executed in due form of law for the said invention and improvement were issued and delivered unto said Packard Motor Car Company, as assignee of said Harold D. Church, whereby there was secured unto said Packard Motor Car Company and its successors and assigns for the term of seventeen years from the 6th day of January, 1920, the sole and exclusive right to make, use and vend to others to use throughout the United States and the territories thereof, the aforesaid invention and improvement; all as by said Letters Patent, or a duly authenticated copy thereof in Court to be produced and shown unto your Honors will more fully and at large appear.

IX.

That subsequent to the granting of the aforesaid Letters Patent, namely on or about the 11th day of September, 1922, by an instrument in writing, said Packard Motor Car Company assigned the entire right, title and interest in, to and under said Letters Patent of the United States No. 1,327,147 to your Orator, The Cleveland Trust Company, which assignment was duly recorded on the 18th day of September, 1922, in Liber C-117 page 64 of the Transfers of Patents; whereby your Orator became vested with and holds the entire right, title and interest in, to and under said Letters Patent No. 1,327,147, as will more fully and at large appear upon production in Court of the assignment aforesaid.

X.

That heretofore and before the 2nd day of June, 1917, Louis P. Mooers, a citizen of the United States, residing at Cincinnati, Hamilton County, State of Ohio,

was the original, first and true inventor of certain new and useful improvements in Pistons for Internal Combustion Motors, fully described in Letters Patent of the United States No. 1,402,309, hereinafter mentioned, which invention or improvement was not known or used by others in this country, or patented or described in any printed publication in this or any foreign country, prior to his invention thereof, or more than two years prior to his application for said Letters Patent; had not been in public use or on sale in this country for more than two years prior to said application; had not been abandoned to the public, and had not been patented or caused to be patented by him or his legal representatives or assigns in any foreign country upon an application filed more than twelve months prior to the filing of his application for Letters Patent of the United States therefor; that the said Louis P. Mooers made due application to the Commissioner of Patents of the United States in accordance with the then existing acts of Congress, for Letters Patent of the United States for said invention and improvement and by an instrument in writing duly executed and delivered by him and duly recorded in the Patent Office of the United States in Liber P-103, page 133 of the Transfers of Patent, assigned an undivided half of the entire right, title and interest in, and to said invention and improvement and in and to said application for Letters Patent to George B. Pitts of Cleveland, Ohio, and authorized and requested the Commissioner of Patents to issue the Letters Patent upon said application and for said invention and improvement to said George B. Pitts and Louis P. Mooers; and by said instruments in writing specified in Article V of this bill as recorded in Liber Q-107, pages 338 and 339 of the Transfer of Patents, said George B. Pitts and Louis P. Mooers, respectively, each assigned an undivided one-half of the entire right, title and interest in, to and under said Letters Patent of the United States No. 1,402,309 to your Orator, The Cleveland Trust Company, and authorized and requested the Commissioner of Patents to issue the Letters Patent upon said application and for said invention and improvement to said The Cleveland Trust Company, whereby your Orator became vested with and holds the entire right, title and interest in, to and under said Letters Patent No. 1,402,309, as will more fully and at large appear upon production in Court of the said Letters Patent and the assignments aforesaid.

XI.

And your Orator further avers and shows unto your Honors that the said defendants, E. C. Long Piston Company and E. C. Long, as your Orator is informed and believes, having due and timely notice of said Letters Patent of the United States, and each of them, and well knowing the premises and the exclusive rights and privileges as aforesaid secured to your Orator by the said Letters Patent, but contriving and planning to injure your Orator and deprive it of the profits, benefits, and advantages which would have otherwise accrued to your Orator from the said Letters Patent have been since the grant of each of the Letters Patent aforesaid, and still are in the said Eastern District of Michigan, unlawfully, wrongfully, and without license or permission of your Orator, manufacturing, or causing to be manufactured, using and selling Pistons constructed according to and containing the aforesaid inventions, discoveries or improvements patented by said Letters Patent in violation and infringement of the aforesaid exclusive rights and privileges of your Orator, and have threatened to continue such infringing acts by making, using and selling Pistons in violation and infringement of your Orator's exclusive rights and privileges under said Letters Patent and to your Orator's great and irreparable loss and damage and contrary to equity and good conscience and to the manifest injury of your Orator in the premises.

XII.

That your Orator has caused notice to be given to the defendants, and each of them, of this aforesaid infringement of said Letters Patent, and each of them, and of the rights of your Orator in the premises, and requested the defendants, and each of them, to desist from such infringement; but that they and each of them have disregarded said notice and request and are continuing such infringement of said Letters Patent as aforesaid;

And inasmuch as your Orator can have no adequate relief except in this Court, and to the end therefore that the defendants may, if they can, show cause why your Orator should not have the relief hereinafter prayed, and may make full disclosure of all the matters aforesaid, your Orator prays

1. That the said defendants, E. C. Long Piston Company and E. C. Long, may be required to appear and make full, true, direct and perfect answer to the matters

heretofore stated and charged, but not under oath, answer under oath being hereby expressly waived.

2. That the said defendants, E. C. Long Piston Company and E. C. Long, may be compelled to account for and pay over to your Orator the gains and profits which they, and each of them, have made and received, or shall have made and received, from said violation of your Orator's rights and from said infringement of the aforesaid Letters Patent, and each of them, and that your Honors may assess or cause to be assessed under your direction, in addition to the gains and profits to be accounted for by the defendants, the damages your Orator has sustained by reason of said infringement, and that your Honors may increase the actual damages to a sum equal to three times the amount of said assessment under the circumstances of the willful and unjust infringement of your Orator's Letters Patent by the said defendants as aforesaid.

3. That your Honors may grant unto your Orator a preliminary and also a perpetual writ of injunction, issuing out of and under the seal of this Honorable Court, and directed to the said E. C. Long Piston Company and E. C. Long, and enjoining it and him, and its and his officers, agents, servants, attorneys and workmen, and each of them, from making, using or vending or causing to be made, used or vended, or in any wise counterfeiting or imitating the inventions and improvements described and claimed in the aforesaid Letters Patent, or any part thereof, and from making, using or vending to others to be used, or causing to be made, used or vended to others to be used, any Pistons, or any parts thereof, made in accordance with said Letters Patent, or any part thereof, or like or similar to Pistons and parts thereof which the defendant has heretofore made and vended to others in violation of the rights of your Orator as aforesaid, and from and in any manner infringing said Letters Patent, or any of them, and that the Pistons and parts thereof embodying said patented inventions and improvements, or any part thereof, now in possession of the defendants, or either of them or their agents or representatives, may be destroyed or delivered up to your Orator for that purpose.

4. That the said defendants, E. C. Long Piston Company and E. C. Long, may be decreed to pay the costs of this suit, and that your Orator may have such other and further relief as the equity of the case may require and to your Honors may seem meet.

And may it please your Honors to grant unto your Orator a writ of injunction conformable to the prayer of this bill, and also a writ of subpoena of the United States of America, directed to the said E. C. Long Piston Company and E. C. Long, commanding it and him, respectively, to appear and make answer unto this bill of complaint and to abide and conform to such order and decree in the premises as to the Court shall seem meet and be required by the principles of equity and good conscience.

And your Orator will ever pray.

THE CLEVELAND TRUST COMPANY,
By R. A. MALM,
Vice President.

ATTEST:—

A. J. PERFLER,
Asst. Trust Officer.

.....
Solicitor for Complainant.

R. T. SAWYER,
Of Counsel.

STATE OF OHIO,
COUNTY OF CUYAHOGA, SS.

On this 6th day of April, 1923, before the undersigned a Notary Public within and for the County and State aforesaid, personally appeared R. A. MALM and made oath that he is the Vice President of The Cleveland Trust Company, the above named complainant, that he has read the foregoing Bill of Complaint, and knows the contents thereof and that the same is true, except as to those matters stated on information and belief, and as to those matters he believes it to be true.

(Notarial Seal)

.....
Notary Public.

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MOTOR WORLD

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JAN 27 1934

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F. J. DENIER, Clerk
U. S. DISTRICT COURT N. D. C.



THE E. C. LONG

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MANY of America's greatest racing champions have adopted E. C. L. racing pistons. Why? Because they are lighter, stronger, and more efficient than any other piston. They run cooler, reduce friction and wear on bearings, and save gas and money.

E. C. L. racing pistons are specially designed for high-speed racing. They are built with a very thin skirt, which allows them to run with less clearance than any other piston. This reduces friction and wear on the cylinder walls.

E. C. L. racing pistons are also built with a special cooling system. The cooling fins are designed to draw heat away from the combustion chamber, keeping the piston at a lower temperature. This prevents overheating and extends the life of the piston.

Look for the E. C. L. racing piston in your next racing car. It will give you the same advantages that have made it famous. It is lighter, stronger, and more efficient than any other piston. It runs cooler, reduces friction and wear on bearings, and saves gas and money.

E. C. L. racing pistons are available in a wide variety of sizes and specifications. Write to us for a complete list.

We will gladly tell you more about our racing pistons. Write to us for a complete list.

E. C. LONG

1000 Franklin Street, Detroit, Mich.

E. C. L. Pistons

JAN 27 1934

U.S. District Court
F. J. DENIER, Clerk
S. District Court W. D. C.

say ———



THE E. C. L. PISTON CO.
INCORPORATED
NEW YORK, N. Y.

E. C. L.

Runs With Less Clearance Than Cast Iron Pistons

MANY of America's business car manufacturers have adopted E. C. L. corresponding aluminum alloy pistons to regular equipment because they run with less clearance than cast iron pistons and consequently reduce the amount of "blow" and noise about the motor.

E. C. L. Wank-Pistons greatly reduce the consumption of gas and oil and increase the power and speed of the motor. They run cooler, reduce vibration and wear on bearings and lower spark trouble.

E. C. L. Wank-Pistons are actually drawn from lightweight aluminum alloy. They may be fitted quickly and easily to any motor—very little clearance. The pistons are designed with their skirt parallel to the crankshaft in the lower part of the stroke. The piston heads are reinforced by a web which is lighter than the skirt of the piston to take care of the excessive expansion in the head, which does not interfere with the running in of the skirt. This is a perfect fit at all times.

Install a set of E. C. L. Wank-Pistons in your next overhaul job and note how smoothly the motor runs—less noise—and economy. Note the reduction in vibration and the elimination of the so-called "piston slap." Start the motor cold and see how smoothly it runs and how quickly it accelerates. There are all factors which will appeal to every motorist—especially those who are driving hot year's cars or the year before. And you can replace the motor in your living room.

E. C. L. Wank-Pistons are supplied in stock for standard and overbore for practically all makes of motors.

We will gladly tell you more about the profit-making opportunities with E. C. L. Wank-Pistons. Write us at once for complete literature.

E. C. L. LONG

MANUFACTURER AND EXPORTER

4034 Drexel Road, Detroit, Mich.

E. C. L. Pistons

INDEPENDENT INVESTIGATION

Page 37 of "Motor World" for December 23, 1933.

(Published January 27, 1934)

UNEXPLAINED

MOTOR WORLD

FILED




Runs With Less Clearance— Than Cast Iron Pistons

MANY of America's engineers and mechanics have adopted E. C. I. pistons for their engines. These pistons are made of aluminum alloy and are designed to run with less clearance than cast iron pistons. This means that they will wear less and last longer.

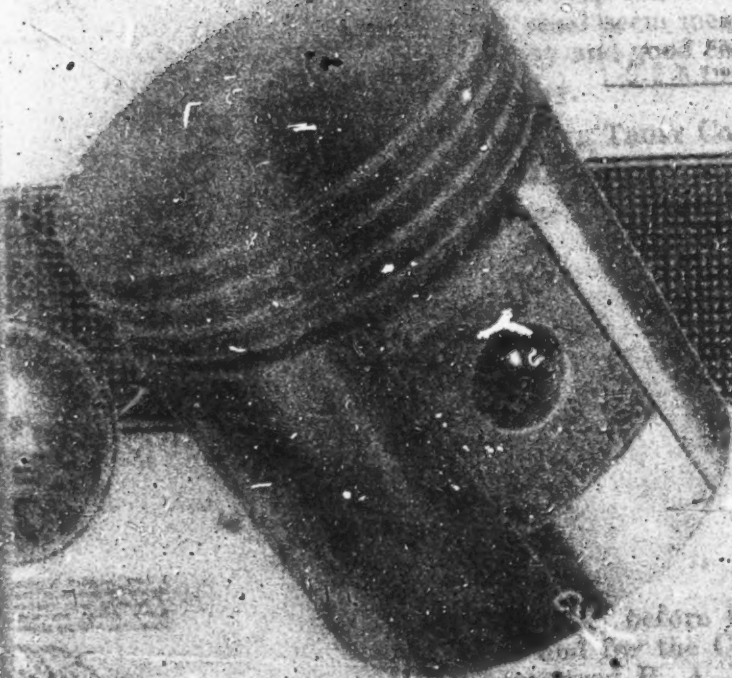
E. C. I. pistons are designed to run with less clearance than cast iron pistons. This means that they will wear less and last longer. The pistons are made of aluminum alloy and are designed to run with less clearance than cast iron pistons. This means that they will wear less and last longer.

Sell Ford Owners



**The
Greatest
Engineering
Improvement
of 1916**

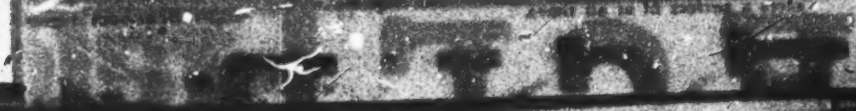
EAK ROOF



Run With Less Clearance Than Cast Iron Pistons

Cast iron pistons are used in many engines because of their strength and durability. However, they have a tendency to wear and tear over time, especially in high-speed engines. This is because cast iron is a brittle material and does not have the same ability to absorb shock as other materials. As a result, cast iron pistons often require more clearance than other types of pistons to prevent them from hitting the cylinder walls. This extra clearance is necessary to allow the piston to move freely without causing any damage to the engine. However, this extra clearance also means that the engine will have a larger volume of air and fuel in the cylinder, which can lead to a loss of power and efficiency. Therefore, it is important to choose a piston that can run with less clearance than cast iron pistons to maintain the best performance of the engine.

MANY of the latest piston designs are made of aluminum alloy, which is a much stronger and more durable material than cast iron. Aluminum alloy pistons are also lighter in weight, which helps to reduce the inertia of the piston and allows it to move more quickly and efficiently. This results in a more powerful and responsive engine. Additionally, aluminum alloy pistons have a much smoother surface than cast iron pistons, which helps to reduce friction and wear on the cylinder walls. This means that aluminum alloy pistons can run with less clearance than cast iron pistons, which helps to maintain the best performance of the engine. Furthermore, aluminum alloy pistons are also more resistant to corrosion and oxidation than cast iron pistons, which helps to extend their lifespan and reduce the need for maintenance. Therefore, aluminum alloy pistons are a much better choice than cast iron pistons for high-speed engines that require less clearance and better performance.



Sell Found Owners

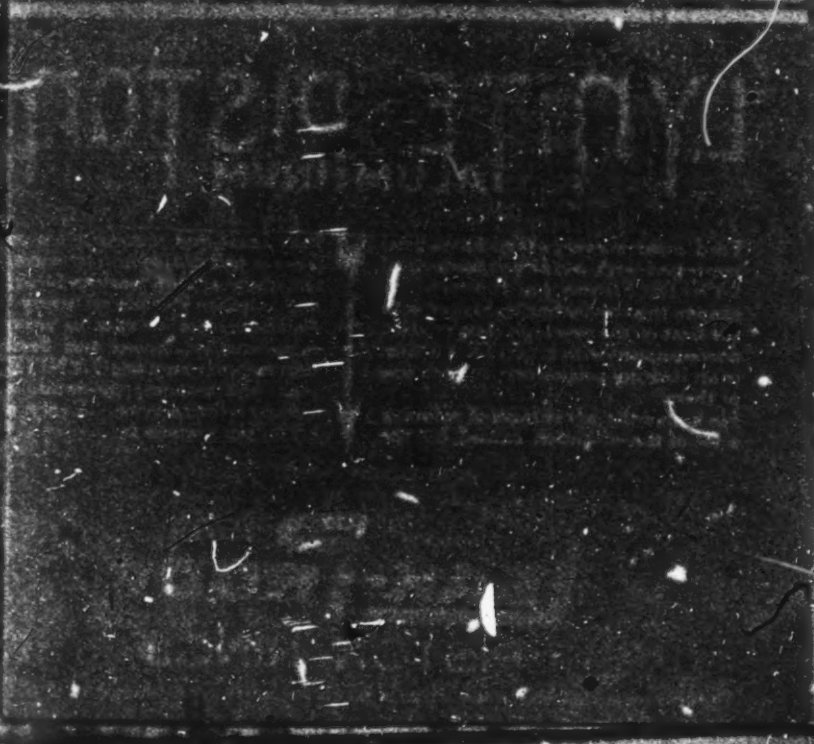


The
Greatest
Engineering
Improvement
of 1916

THE
EAST
ROOF

2011 Ford Overland

The
Greatest
Engineers
Improvement
of 1916



THE AUTOMATIC DEFENSE

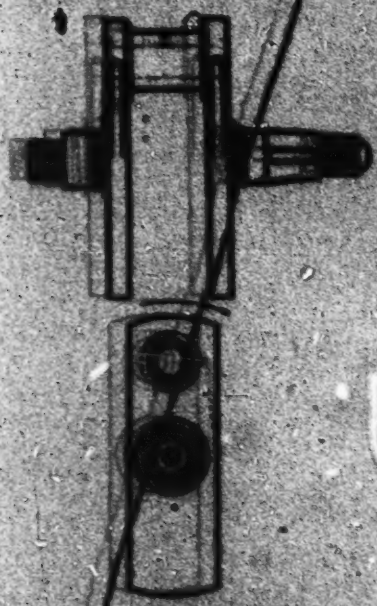
THE TREND OF INVENTION

By Mr. W. W. W.

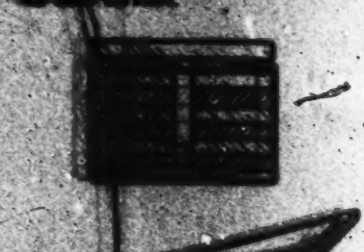
It is the purpose of this article to discuss the trend of invention in the field of automatic defense.

The first of the inventions discussed in this article is the automatic defense system.

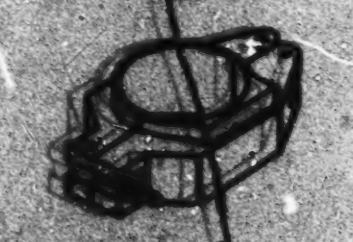
The second of the inventions discussed in this article is the automatic defense system.



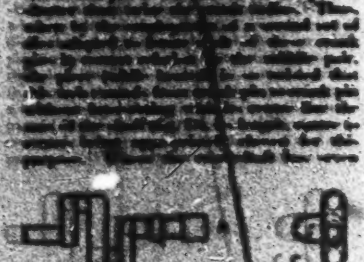
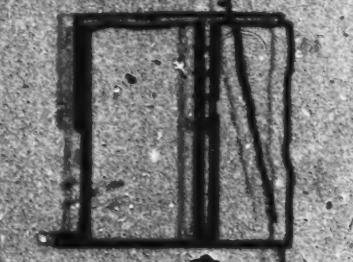
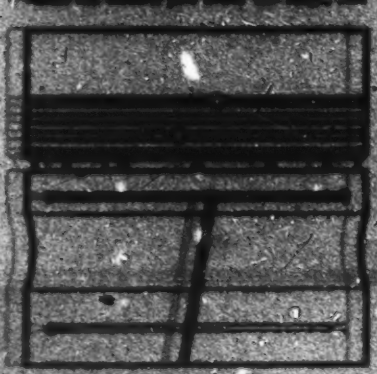
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The fourth of the inventions discussed in this article is the automatic defense system.



The fifth of the inventions discussed in this article is the automatic defense system.



The sixth of the inventions discussed in this article is the automatic defense system.



Fig. 1. The automatic defense system.

Fig. 2. The automatic defense system.

Fig. 3. The automatic defense system.

Self-Starting

The
Greatest
Engine
Improvement
of 1910

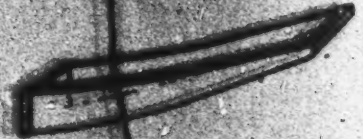
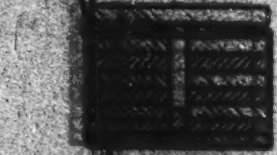
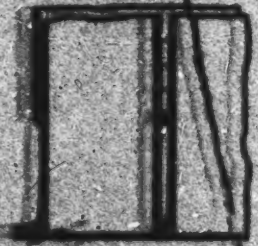
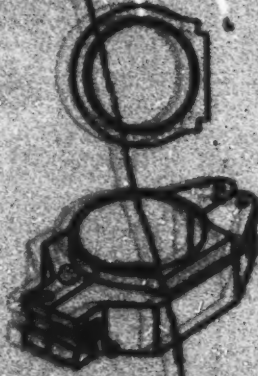
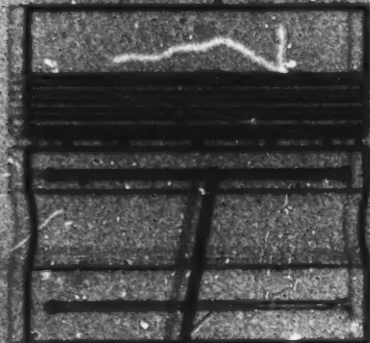
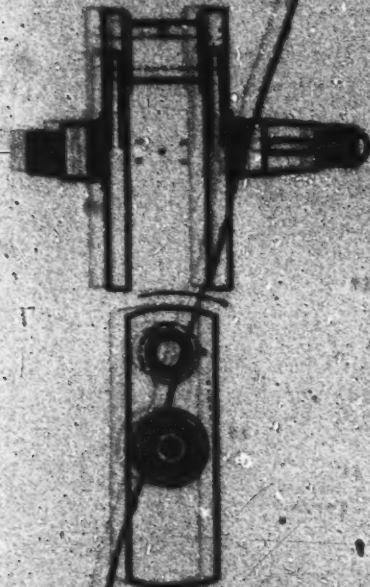


WATSON

WATSON

WATSON

WATSON



DEFENDANT'S EXHIBIT 52

Page 204 of "The Automobile Engineer"
for December 1920.

(Filed January 27, 1934.)

Defendants' Exhibit 5-F.

To face page 2277

DEFENDANTS' EXHIBIT 5-F.

Out to Accompany Stipulated Digest of Same.

MURKIN, STAFF, FINISHED IN KANSAS COUNTY RACE

DEFENDANTS' EXHIBITS 5-F₁ TO 5-F₁₂

Digest of Defendants' Exhibit 5-F₁

(Motor Age, August 24, 1911, pages 3 and 5.)

List of Entries for Elgin Race Includes No. 27 G. Monckmeier, Staver Chicago, Model 1912.

Article includes picture of Monckmeier in Staver automobile and also picture of Ralph Ireland. Comment is also made with reference to the injuries of Ireland, suffered during practice for the races, and which resulted in his death.

Digest of Defendants' Exhibit 5-F₂

(Motor Age, August 31, 1911, pages 10, 12 and 15.)

Article includes, picture of automobile with number "27" on radiator, beneath which is the following:

"Monckmeier, Staver, Finisher in Kane County Race,"

and a table showing the result of the race and including the name of G. Monckmeier, Staver-Chicago.

Digest of Defendants' Exhibit 5-F₃

(The Automobile, October 13, 1911, page 643.)

Article, dated October 9, mentions a Staver-Chicago car driven by Monckmeier as participating in four races at Springfield, Illinois.

Digest of Defendants' Exhibit 5-F₄

(Motor Age, October 12, 1911, page 10.)

Article, dated October 9, with reference to racing in Springfield, Illinois, mentions the participation of Monckmeier driving a Staver-Chicago in four races.

Digest of Defendants' Exhibit 5-F₅

(The Automobile, October 19, 1911, page 687.)

With reference to racing at Peoria, Illinois, October 14, Monckmeier driving a Staver-Chicago, Listed in four races.

Digest of Defendants' Exhibit 5-F₆

(The Automobile, November 16, 1911, page 853.)

Racing in San Antonio, Texas, November 13. Monckmeier listed as engaging in four races.

Digest of Defendants' Exhibit 5-F₇.

(Motor Age, November 16, 1911, page 15.)

Article, dated November 13, with reference to racing at San Antonio, Texas—Monckmeier listed as engaging in four races and driving a Staver-Chicago.

Digest of Defendants' Exhibit 5-F₈.

(Motor Age, December 14, 1911, pages 4 and 7.)

The name of Monckmeier driving a Staver-Chicago included in a list of averages made by various racers during 1911. G. Monckmeier driving a Staver-Chicago also listed as a participant in the Kane County Cup Race, Elgin, Illinois.

Digest of Defendants' Exhibit 5-F₉.

(Motor Age, October 16, 1913, page 21.)

With reference to racing at Springfield, Illinois, October 4, Monckmeier listed as driving a Staver-Chicago and participating in four races.

Digest of Defendants' Exhibit 5-F₁₀.

(Motor Age, December 4, 1913, page 24.)

Article, dated November 27, lists Monckmeier as participating in a race at San Antonio, Texas.

Digest of Defendants' Exhibit 5-F₁₁.

(The Peoria Star, Peoria, Illinois, September 27, 1913.)

Monckmeier, driving a Staver-Chicago, finished second in three races and first in another, setting a new State record in the latter.

Digest of Defendants' Exhibit 5-F₁₂.

(The Peoria Star, Peoria, Illinois, July 5, 1914.)

Monckmeier driving a Staver listed as participating in races.

DEFENDANTS' EXHIBIT 5-G.

Digest of Defendants' Exhibit 5-G.

(Certificate from Secretary of State for State of Illinois.)

This certificate shows that Staver Motor Car Company, located at 527 West 76th Street, Auburn Park, Chicago, was incorporated on August 29, 1913, and that the corporation was dissolved on January 31, 1928.

DEFENDANTS' EXHIBITS 5-H₁ to 5-H₃.

Digest of Defendants' Exhibit 5-H₁.

(Decision of Law Examiner in the United States Patent Office, dated May 23, 1921, in Hartog v. Pomeroy Interference No. 45,351.)

Decision denies Motion to Dissolve brought by Pomeroy.

Digest of Defendants' Exhibit 5-H₂.

(Decision of Examiner of Interferences in the United States Patent Office, dated February 17, 1922, in Hartog v. Pomeroy Interference No. 45,351.)

Decision awards priority of invention of the subject matter in issue to Pomeroy.

Digest of Defendants' Exhibit 5-H₃.

(Decision of the Board of Appeals in the United States Patent Office, dated August 10, 1922, Hartog v. Pomeroy Interference No. 45,351.)

This decision reverses the decision of the Examiner of Interferences on the question of priority and awards priority of invention to Hartog.

DEFENDANTS' EXHIBIT 5-I**Digest of Defendants' Exhibit 5-I**

(Includes Items from Exhibits Identified as V-1, V-2
and V-4.)

EXHIBIT V-1—CASH DISBURSEMENTS**1919**

November	10—Walker M. Levitt Co.	\$164.03
November	19—Walker M. Levitt Co.	67.50
November	28—Walker M. Levitt Co.	316.33
December	6—Walker M. Levitt Co.	243.13
December	6—E. C. Long—Royalties for sale pistons	27.40
December	8—Walker M. Levitt Co.	31.56
December	12—Walker M. Levitt Co.	76.61
December	18—E. C. Long—for moneys re- ceived on F. Motor Car Co., Chic.	720.07

1920

January	6—E. C. Long—Royalties	\$ 24.00
January	10—Walker M. Levitt Co.	57.04
January	15—Walker M. Levitt Co.	80.33
January	19—E. C. Long	49.92
January	22—E. C. Long	99.49
January	22—Walker M. Levitt Co.	108.00
January	27—Walker M. Levitt Co.	101.25
January	29—Walker M. Levitt Co.	149.51
February	5—Walker M. Levitt Co.	206.38
February	5—Walker M. Levitt Co.	199.80
February	7—E. C. Long—Royalty	80.60
February	9—Walker M. Levitt Co.	249.42
March	3—E. C. Long—Royalty	127.80
March	4—Walker M. Levitt Co.	319.28
March	6—Walker M. Levitt Co.	668.99
April	9—E. C. Long	157.60
May	10—E. C. Long—Royalty	106.40
June	8—E. C. Long—Royalties	138.40
July	8—E. C. Long	117.80
August	2—Walker M. Levitt Co.	1036.13
August	7—E. C. Long	96.40
Sept.	10—E. C. Long	151.60
Oct.	8—Walker M. Levitt Co.	136.54
Oct.	9—E. C. Long	87.20
October	11—Walker M. Levitt Co.	100.58
Nov.	10—E. C. Long	103.40
Dec.	2—Walker M. Levitt Co.	273.38
Dec.	10—E. C. Long	69.20

1921

January 10—E. C. Long..... \$71.80

DEFENDANTS' EXHIBIT V-2—SALES—PISTONS

1919

November 29—Sales during November..... 1006.95
 December 26—6 Pistons returned from Frank-
 lin Sales Co., Streator, Ill. 44.10
 December 26—32 Pistons returned from Frank-
 lin Motor Car Co., Chicago, Ill. 249.90
 December 26—6 Pistons returned from Frank-
 lin Motor Car Co., Chicago..... 44.10
 December 31—6 Pistons returned from Dixie
 Motor Sales Co., Memphis, Tenn. 44.10
 December 31—Sales during December 1381.80

1920

January 31—Sales during January 2274.00
 January 31—6 Pistons returned from Frank-
 lin Ross Motor Car Co., St.
 Louis 44.10
 February 28—Sales during February 4021.65
 March 31—Sales returned during March.. 88.20
 March 31—Sales returned from Billings,
 Mont. 7.35
 March 31—Sales Pistons March 4533.42
 April 1—Returned from Franklin Motor
 Car Co., Chicago 44.10
 April 5—Returned from Franklin Motor
 Car Co., Chicago 31.50
 April 10—Returned from Holmes, Canton,
 Ohio 172.12
 April 10—Returned from Holmes, Canton,
 Ohio 137.70
 April 10—Returned from Holmes, Canton,
 Ohio 309.83
 April 19—Returned from Norman Gratz,
 Canton, Ohio 12.60
 April 20—Returned from Franklin Motor
 Car Co., Chicago 37.80
 April 30—Sales—April 3991.48
 May 31—2 Pistons returned from Frank-
 lin Motor Car Co., Chicago.... 12.60

1920—Continued

May	31—1 Piston returned from Drescher, Oak Park	\$7.65
	3 Pistons returned from Franklin Motor Car Co., Chi.....	18.90
	4071.71	
May	31—Sales—May	
June	3—6 Pistons to be done over—returned from Horton, Kansas	37.80
June	7—96 Pistons to be done over—returned from Holmes, Canton	550.80
June	25—22 Pistons returned to be done over for Holmes, Canton, O....	126.23
June	23—24 Pistons returned to be done over for Holmes, Canton, O....	137.70
June	30—6 Pistons returned from Horton, Kansas	37.80
June	30—Sales—June	4814.88
July	1—1 Piston from Holmes, St. Paul	8.10
July	6—1 Piston from F. M. Car Co., Chicago, Ill.	6.30
July	9—1 Piston from Franklin Sherwood Company	6.30
July	3—6 Pistons from South Side Garage	37.80
July	27—2 Pistons from Franklin Motor Car Co., Chicago	12.60
July	31—6 Pistons from F. B. Heathman & Company	37.80
July	31—1 Piston from Chappel Bros....	7.50
July	31—Sales Pistons Sales Book July	3566.69
August	31—Return Sales—Pistons	86.40
August	31—Return Sales—Pistons	101.70
August	31—Sales Pistons	3497.04
September	30—Sales Pistons—September Summary	3037.05
October	30—Sales Book Summary—Oct....	2608.26
November	30—Sales Book Summary	2210.68
December	31—6 Pistons returned from Wilson M. S. Co.	37.80
December	31—2 Pistons returned from E. T. Byram	11.20
December	31—14 Pistons returned from Franklin Motor Car Co., Chicago, Ill.	78.40
December	31—Sales Book Summary—December	2094.09

1921

January	31—Return Sales, Barr & B Garage, Salina, Kansas	\$37.80
January	31—Sales Book Summary	2713.91
February	11—Return Sales Cramer Motor, Car Co.	40.00
February	28—Sales Book Summary	1603.58
March	31—Sales Book Summary	2999.92
April	30—Sales Book Summary	3397.89
April	22—Return Sales W. I. Elliott Co. .	5.55
May	31—Sales Book Summary	2232.90
June	30—Sales Book Summary	2131.38
July	30—Sales Book Summary	1789.62

DEFENDANTS' EXHIBIT V-2—ACCOUNT NO. 44—
COST OF PISTONS SOLD

1919

November	30—Finished Pistons, 137 Sold in Nov.	422.77
December	31—Finished Pistons Sold (184) Dec.	300.48

1920

March	31—Pistons returned from Little Rock	88.20
March	31—Pistons returned from Fkln, Ross M. Co., St. Louis	18.96
March	31—Pistons returned Billings, Mont.	2.51
April	1—Pistons returned	867.42
April	20— " "	42.66
May	31—2 Pistons returned F. M. Car Co., Chi.	10.52
May	31—1 Piston returned Deschler, Oak Park, Ill.	5.26
May	31—3 Pistons returned F. M. Car Co., Chicago	15.78

DEFENDANTS' EXHIBIT V-4—ENTRY BOOK CONSIST-
ING OF SALES, COSTS, FACTORY EXPENSE, ET
CETERA

Note on Flyleaf—"Started new
system Piston Manufacture Au-
gust 17, 1920—Had men come
to office for a short meeting—so
as to give them better under-
standing of our method"

1919

December	26—Sales Pistons Franklin Sales Co., Streator, Ill.	\$ 44.10
December	26—Sales Pistons Sales Pistons, Franklin Motor Car Company, Chicago	24.99 44.10
December	31—Sales Pistons, Dixie Motor Sales Co.	44.10
December	31—E. C. Long, Chas. Bartlett, For Pistons	9.80

1920

January	23—Advertising, E. C. Long, Giving Mr. Long Cost price on Pistons used in Mr. Chas. Bartlett's car	52.56
January	22—E. C. Long, Finished Goods ...	53.13

DEFENDANTS' EXHIBIT.

Bill of Complaint in Case No. 3510 in the U. S. District Court for the Northern District of Ohio, The Cleveland Trust Company and Chrysler Corporation vs. The Simmons Mfg. Co. and Sterling Products Corp.

(Filed in District Court.)

IN THE UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF OHIO

EASTERN DIVISION

**THE CLEVELAND TRUST
COMPANY,
CHRYSLER CORPORATION,**

Plaintiffs,

vs.

**THE SIMMONS MANUFACTURING
COMPANY,
STERLING PRODUCTS CORPORATION,**

Defendants.

(In Equity No. 3510.)

Spillman-Mooers	1,092,870
Mooers	1,402,309
Franquist	1,153,902
Schmiedeknecht	1,256,265
Howdeshell	16,273
Maynard	1,655,968
Jardine	1,763,523
Gulick	1,815,773

AMENDED BILL OF COMPLAINT

Now come the Plaintiffs and, pursuant to the Order of this Court hereto annexed, file this amended Bill of Complaint. Plaintiffs allege:

1. That Plaintiff, The Cleveland Trust Company, is a corporation organized and existing under the laws of the State of Ohio, having its principal place of business at Cleveland, State of Ohio.

That Plaintiff, Chrysler Corporation, is a corporation organized and existing under the laws of the State of Delaware, having its principal place of business at Highland Park, State of Michigan.

2.

That Defendant, The Simmons Manufacturing Company of Cleveland, Ohio, is a corporation organized and existing under the laws of the State of Ohio and is a citizen and inhabitant thereof, having a regular and established place of business at 3506 Perkins Avenue in the City of Cleveland, County of Cuyahoga and State of Ohio.

That Defendant, Sterling Products Corporation of St. Louis, Missouri, is a corporation duly organized and existing under the laws of the State of Missouri and has a regular and established place of business at 2914 North Market Street in the City of St. Louis, County of St. Louis, and State of Missouri.

3.

This suit is brought under the patent laws of the United States, and seeks injunctive and other relief against the defendants and each of them for infringements and contributory infringements committed by each and both defendants within this Judicial District and elsewhere within the United States.

4.

That heretofore and prior to the 18th day of July, 1913, Edward O. Spillman and Louis P. Mooers, citizens of the United States, then residing at North Tonawanda in the County of Niagara and State of New York, were the original, first and joint inventors of certain new and useful improvements in Pistons for Explosion Engines or Motors, fully described in Letters Patent of the United States, No. 1,092,870 hereinafter mentioned, which invention or improvement was not known or used by others in this country, or patented or described in any printed publication in this or any foreign country, prior to their invention thereof, or more than two years prior to their application for said Letters Patent, and has not been in public use or on sale in this country for more than two years prior to said application, and had not been abandoned to the public, and had not been patented or caused to be patented by them or their legal representatives or assigns in any foreign country upon an application filed more than twelve months prior to the filing of their application for Letters Patent of the United States therefor; that the said Edward O. Spillman and Louis P. Mooers made due application to the Commissioner of Patents of the United States in accordance with the then existing Acts of Congress, for Letters Patent of the United States for said invention or improvement, and having in all respects complied with the conditions and requirements of said Acts of Congress, on the 14th day of April, 1914, Letters Patent of the United States No. 1,092,870, signed, sealed and executed in due form of law, for the said invention or improvement were is-

sued and delivered unto said Edward O. Spillman and Louis P. Mooers, whereby there was secured unto them, their successors and assigns for the term of seventeen years from the said 14th day of April, 1914, the sole and exclusive right to make, use and sell to others to be used, through the United States, and the territories thereof, the aforesaid invention or improvement, all as by said Letters Patent, or a duly authenticated copy thereof in Court to be produced and shown unto Your Honors, will more fully and at large appear.

5.

That subsequent to the granting of the aforesaid Letters Patent, namely, on or about the 16th day of June, 1916, by an instrument in writing, one George B. Pitts acquired from said Edward O. Spillman and The Herschel Spillman Company, a corporation of the State of New York, the undivided one-half of the entire right and interest in, to and under said Letters Patent of the United States No. 1,092,870, said assignment having been duly recorded on the 5th day of September, 1916, in Liber R-101, page 1 of the Transfers of Patents; that thereafter and on or about the 3rd day of July, 1919, the said George B. Pitts by an instrument in writing that was duly recorded in the United States Patent Office on the 28th day of July, 1919 in Liber Q-107, page 336 of the Transfers of Patents, assigned said undivided one-half of the entire right, title and interest in, to and under said Letters Patent No. 1,092,870 to your Orator, The Cleveland Trust Company; and that the said Louis P. Mooers on the 10th day of July, 1919, by an instrument in writing that was duly recorded in the United States Patent Office on the 28th day of July, 1919, in Liber Q-107, page 339 of the Transfers of Patents, assigned the remaining undivided one-half of the entire right, title and interest in, to and under said Letters Patent No. 1,092,870 to your Orator, The Cleveland Trust Company, whereby your Orator became vested with and holds the entire right, title and interest in, to and under said Letters Patent No. 1,092,870, as will more fully and at large appear upon production in Court of the assignments aforesaid.

6.

That heretofore and prior to the 2nd day of June, 1917, Louis P. Mooers, a citizen of the United States, then residing at Cincinnati, Hamilton County, State of Ohio, was the original, first and true inventor of certain new and useful improvements in Pistons for Internal Combustion Motors, fully described in Letters Patent of the United States No. 1,402,309, hereinafter mentioned, which invention or improvement was not known or used by others in this country or patented or described in any printed publication in this or any foreign country, prior to his invention thereof, or more than two years prior to his application for said Letters Patent, had not been in public use or on sale in this country for more than two years prior to said application; had not been abandoned to the public, and had not been patented or caused to be patented by him or his legal representatives or assigns in any foreign country upon an application filed more than twelve months prior to the filing of his application for Letters Patent of the United States therefor; that the said Louis P. Mooers made due application to the Commissioner of Patents of the United States in accordance with the then existing Acts of Congress, for Letters Patent of the United States for said invention and improvement.

7.

That by an instrument in writing duly executed and delivered by said Louis P. Mooers and duly recorded in the United States Patent Office in Liber P. 103, page 133 of the Transfers of Patents, said Louis P. Mooers assigned an undivided half of the entire right, title and interest in, and to said invention and improvement and in and to said application for Letters Patent to George B. Pitts of Cleveland, Ohio and authorized and requested the Commissioner of Patents to issue the Letters Patent upon said application and for said invention and improvement to said George B. Pitts and Louis P. Mooers; and by said instruments in writing specified in Article 3 of this Bill as recorded in Liber Q-107, pages 336 and 339 of the Transfers of Patents, said George B. Pitts and Louis P. Mooers respectively each assigned his undivided one-half of the entire right, title and interest in, to and under said Letters Patent of the United States No. 1,402,309 to your Orator, The Cleveland Trust Company, and authorized and requested the Commissioner

of Patents to issue the Letters Patent upon said application and for said invention and improvement to said The Cleveland Trust Company; whereby your Orator became vested with and holds the entire right, title and interest in, to and under said Letters Patent No. 1,402,309, as will more fully and at large appear upon production in Court of the said Letters Patent and the assignments aforesaid.

8.

That heretofore and prior to the 1st day of August, 1914, Gustave E. Franquist deceased, then a citizen of the United States residing in the City of New Brunswick, County of Middlesex and State of New Jersey, was the original, first and sole inventor of certain new and useful improvements in Pistons, fully described in Letters Patent of the United States No. 1,153,902, which invention or improvement was not known or used by others in this country, or patented or described in any printed publication in this or any foreign country prior to his invention thereof for more than two years prior to his application for Letters Patent, and had not been in public use or on sale in this country for more than two years prior to said application, and had not been abandoned to the public, and had not been patented or caused to be patented by him or his legal representatives or assigns in any foreign country upon an application filed more than twelve months prior to the filing of his application for Letters Patent of the United States therefor; that said Gustave E. Franquist made such application to the Commissioner of Patents of the United States in accordance with the then existing Acts of Congress for Letters Patent of the United States for said invention or improvement and, having in all respects complied with the conditions and requirements of said Acts of Congress, on or about the 21st day of September, 1915, Letters Patent of the United States No. 1,153,902; signed, sealed and executed in due form of law for the said invention or improvement, were issued and delivered unto said Gustave E. Franquist, whereby there was secured to him, his successors and assigns, for the term of seventeen years from the said 21st day of September, 1915, the sole and exclusive right to make, use and sell to others to be used throughout the United States and the territories thereof, pistons embodying the aforesaid invention or improvements, all by said Letters Patent or

a duly authenticated copy thereof in Court to be produced and shown unto Your Honors, as will more fully and at large appear.

9.

That subsequent to the granting of the aforesaid Letters Patent, namely on or about the 16th day of May, 1924, by an instrument in writing that was duly recorded in the United States Patent Office on or about the 9th day of June, 1924, in Liber 121 of the Transfers of Patents, page 199, said Gustave E. Franquist assigned the entire right, title and interest in, to and under said Letters Patent of the United States No. 1,153,902 to your Orator, The Cleveland Trust Company; whereby your Orator became vested with and now owns and holds the entire right, title and interest in, to and under said Letters Patent of the United States No. 1,153,902, as will more fully and at large appear upon production in Court of the assignments aforesaid.

10.

That heretofore and prior to the 22nd day of May, 1920, Roland M. Howdeshell, a citizen of the United States then residing in the City of St. Louis, County of St. Louis and State of Missouri, was the original, first and sole inventor of certain new and useful improvements in Pistons for Engine Cylinders, as fully described in Letters Patent of the United States No. 1,473,233, which invention or improvement was not known or used by others in this country, or patented or described in any printed publication in this or any foreign country prior to his invention thereof, or more than two years prior to his application for Letters Patent; had not been in public use or on sale in this country for more than two years prior to said application; had not been abandoned to the public, and had not been patented or caused to be patented by him or his legal representatives or assigns in any foreign country upon an application filed more than twelve months prior to the filing of his application for Letters Patent of the United States therefor; that said Roland M. Howdeshell made due application to the Commissioner of Patents of the United States in accordance with the then existing Acts of Congress for Letters Patent of the United States for said invention or improvement.

11.

That by an instrument in writing duly signed, sealed and delivered on or about the 20th day of May, 1920, and duly recorded in the United States Patent Office on or about the 22nd day of May, 1920, in Liber H-110, page 170 of the Transfers of Patents, the said Roland M. Howdeshell did sell, assign and transfer to H. & H. Machine Company, a corporation of Missouri having its principal place of business at St. Louis, Missouri, the entire right, title and interest in and to the said invention and application for Letters Patent and Letters Patent to issue thereon, and said Roland M. Howdeshell, having in all respects duly complied with the conditions and requirements of said Acts of Congress, and after due examination of the aforesaid application, the Commissioner of Patents did, on or about the 6th day of November, 1923, grant and deliver said Letters Patent of the United States No. 1,473,233 to said H. & H. Machine Company, in the name of the United States of America; whereby there was granted to said H. & H. Machine Company, its successors and assigns, the exclusive right to make use of said invention throughout the United States and the territories thereof, for the term of seventeen years from the said 6th day of November, 1923, as will more fully and at large appear by the production in this Court of a duly authenticated copy of said Letters Patent.

12.

That subsequent to the granting of the aforesaid Letters Patent No. 1,473,233, said H. & H. Machine Company, by an instrument in writing dated the 16th day of March, 1925 and duly recorded in the United States Patent Office on or about the 13th day of April, 1925 in Liber W-123, pages 440 and 442 of the Transfers of Patents, said H. & H. Machine Company assigned the entire right, title and interest in, to and under said Letters Patent of the United States No. 1,473,233 to The Cleveland Trust Company, plaintiff, whereby plaintiff became vested with and now holds the entire right, title and interest in, to and under said Letters Patent No. 1,473,233, as will more fully and at large appear upon production in Court of the assignments aforesaid.

13.

That on or about the 20th day of August, 1925, said Roland M. Howdeshell and said The Cleveland Trust

Company, verily believing that the aforesaid Letters Patent of the United States No. 1,473,233 were inoperative for the reason that the specification thereof was defective, and that such defect consisted particularly in the failure of the patent to claim broadly the novel features of the invention therein disclosed, said Letters Patent were surrendered to the United States Patent Office and an application for re-issue of the aforesaid Letters Patent was made by said Roland M. Howdeshell and his assignee, The Cleveland Trust Company, plaintiff.

14.

That after due examination of said application for re-issue of said Letters Patent, the Commissioner of Patents did, on or about the 23rd day of February, 1926, grant and deliver to plaintiff, The Cleveland Trust Company, as assignee of said H. & H. Machine Company, in the name of the United States of America, United States re-issue Letters Patent No. Re-16,273; whereby there was granted to plaintiff, its successors and assigns, the exclusive right, for the term of seventeen years from said 23rd day of February, 1926, to make, use and sell pistons embodying said inventions throughout the United States and the territories thereof, as will more fully and at large appear by production here in this Court of the original of said Re-issue Letters Patent Re-16,273.

15.

That heretofore, and prior to the third day of January, 1921, Howard E. Maynard, then residing at Detroit, in the County of Wayne and State of Michigan, was the original, first and true inventor of certain new and useful improvements in Pistons fully described in Letters Patent of the United States No. 1,655,968 hereinafter mentioned, which invention or improvement was not known or used by others in this country, or patented or described in any printed publication in this or any foreign country before his said invention or discovery thereof, or more than two years prior to his application for Letters Patent therefor, and had not been in public use or on sale in this country for more than two years prior to his application for Letters Patent therefor; and had not been patented or caused to be patented by him or his legal representatives or assigns in any foreign country upon an application filed more than twelve months prior to the filing of the application for Letters Patent thereon in this country.

16.

That the said Howard E. Maynard, being as aforesaid, the inventor of the said improvement, made application to the Commissioner of Patents of the United States for Letters Patent in accordance with the then existing Acts of Congress, and, having in all respects complied with the conditions and requirements of said Acts of Congress, on the tenth day of January, 1928 Letters Patent of the United States numbered 1,655,968, signed, sealed and executed in due form of law, for the said invention or improvement, were issued to said Chrysler Corporation, a corporation of Delaware, at Highland Park, Michigan, plaintiff, and Aluminum Company of America, a corporation of Pennsylvania, at Pittsburgh, Pa., as assignees each of one-half of the entire right, title and interest in and to said Letters Patent, whereby there was secured to Chrysler Corporation and Aluminum Company of America for the term of seventeen years from the tenth day of January, 1928, the sole and exclusive right to make, use and sell to others to be used throughout the United States and the territories thereof, the aforesaid invention or improvement, all as by said Letters Patent, or a duly authenticated copy thereof here in Court to be produced and shown unto Your Honors, as will more fully and at large appear.

17.

That prior to the filing of this Bill of Complaint, said Aluminum Company of America, by an instrument in writing dated February 23, 1928 and recorded in the Transfers of Patents in the United States Patent Office as of May 12, 1930 in Liber Z-143, page 283, assigned its undivided one-half interest in the entire right, title and interest in and to said Letters Patent No. 1,655,968 to The Cleveland Trust Company, plaintiff herein, together with the right to sue for and recover damages for past infringements of said Letters Patent, whereby your plaintiff, The Cleveland Trust Company, became vested with and now holds an undivided one-half interest in the entire right, title and interest in, to, and under said Letters Patent No. 1,655,968, as will more fully and at large appear upon production in Court of the assignments aforesaid.

18.

That the plaintiff, Chrysler Corporation, is a non-resident and resides without the jurisdiction of this Court and therefore cannot be served with process and made a co-defendant in this cause, and that plaintiff, The Cleveland Trust Company, has advised Chrysler Corporation of the imminent pendency of this case and of the obligation of Chrysler Corporation to join voluntarily in the bringing of this suit, but that Chrysler Corporation has refused or declined to so voluntarily join and that the plaintiff, The Cleveland Trust Company, is without remedy on the Maynard patent unless Chrysler Corporation is joined as a co-plaintiff in this cause, and therefore to prevent a failure of justice and to enable The Cleveland Trust Company to protect its interests herein, the Chrysler Corporation is made a plaintiff herein without its consent.

19.

That heretofore and prior to the 11th day of March, 1920, Frank Jardine, a citizen of the United States, then residing at Cleveland, in the County of Cuyahoga and State of Ohio, was the original, first and true inventor of certain new and useful improvements in Pistons, fully described in Letters Patent of the United States No. 1,763,523, hereinafter mentioned, which invention or improvement was not known or used by others in this country or patented or described in any printed publication in this or any foreign country, prior to his invention thereof, or more than two years prior to his application for said Letters Patent; had not been in public use or on sale in this country for more than two years prior to said application; had not been abandoned to the public, and had not been patented or caused to be patented by him or his legal representatives or assigns in any foreign country upon an application filed more than twelve months prior to the filing of his application for Letters Patent of the United States therefor; that the said Frank Jardine made due application to the Commissioner of Patents of the United States in accordance with the then existing Acts of Congress, for Letters Patent of the United States for said invention and improvement, and having in all respects complied with the conditions and requirements of said Acts of Congress, and having, by mesne assignments, as will more fully and at large appear upon production in Court of said assign-

ments, assigned his entire right, title and interest in and to said Letters Patent No. 1,763,523 to The Cleveland Trust Company, as a Trustee, and having authorized and requested the Commissioner of Patents to issue the Letters Patents upon said application and for said invention and improvements to said The Cleveland Trust Company, on or about the 10th day of June, 1930, Letters Patent of the United States No. 1,763,523, signed, sealed and executed in due form of law, for the said invention or improvement, were issued and delivered to plaintiff, The Cleveland Trust Company, whereby there was secured to it, its successors and assigns, for the term of seventeen years from the said 10th day of June, 1930, the sole and exclusive right to make, use, and sell to others to be used, throughout the United States and the territories thereof, the aforesaid invention or improvement, all as by said Letters Patent or a duly authenticated copy thereof in Court to be produced and shown unto Your Honors, will more fully and at large appear.

20.

That heretofore and prior to the 14th day of July, 1917, Victor E. Schmiedeknecht, a citizen of the United States then residing at Louisville in the County of Jefferson and State of Kentucky, was the first and true inventor of certain new and useful improvements in Pistons, fully described in Letters Patent of the United States No. 1,256,265, hereinafter mentioned, which invention and improvement was not known or used by others in this country, or patented or described in any printed publication in this or any foreign country, prior to his invention thereof, or more than two years prior to his application for said Letters Patent; had not been in public use or on sale in this country for more than two years prior to, said application; had not been abandoned to the public, and had not been patented or caused to be patented by him or his legal representatives or assigns in any foreign country upon an application filed more than twelve months prior to the filing of his application for Letters Patent of the United States therefor; that the said Victor E. Schmiedeknecht made due application to the Commissioner of Patents of the United States in accordance with the then existing Acts of Congress, for Letters Patent of the United States for said invention and improvement, and having in all respects com-

plied with the conditions and requirements of said Acts of Congress, on the 12th day of February, 1918, Letters Patent of the United States No. 1,256,265, signed, sealed and executed in due form of law for the said invention or improvement, were issued and delivered unto said Victor E. Schmiedeknecht, his successors and assigns, for the term of seventeen years from said 12th day of February, 1918, the sole and exclusive right to make, use and sell to others to be used, throughout the United States and the territories thereof, the aforesaid invention or improvement, all as by said Letters Patent or a duly authenticated copy thereof in Court to be produced and shown to Your Honors will more fully and at large appear.

21.

That subsequent to the granting of the aforesaid Letters Patent No. 1,256,265, by an instrument in writing that was duly recorded in the United States Patent Office on or about the 16th day of August, 1927 in Liber F-131, page 79 of the Transfers of Patents, said Victor E. Schmiedeknecht assigned the entire right, title and interest in, to and under said Letters Patent of the United States No. 1,256,265, together with the right to sue for, collect, and retain damages and profits for past infringement under said Letters Patent to one Frank Kent of New York City; and, whereas this assignment was further amplified by further warranty and guarantee that was also recorded in the United States Patent Office on or about the 16th day of August, 1927 in Liber P-131, page 81 of the Transfers of Patents; whereby said Frank Kent, his successors and assigns, became vested with the entire right, title and interest in, to and under said Letters Patent of the United States No. 1,256,265, together with the right to sue for, collect, and retain damages and profits for past infringements of said Letters Patent.

22.

That by an instrument in writing dated October 12, 1927 and duly recorded in the United States Patent Office in the Transfers of Patents, said Frank Kent assigned the entire right, title and interest in, to and under said Letters Patent of the United States, together with the right to sue, collect, and retain damages and profits for past infringement, to Bohn Aluminum & Brass Corporation of Detroit, Michigan, its successors and assigns.

23.

That said Bohn Aluminum & Brass Corporation, by an instrument in writing dated on or about August 31st, 1927, and recorded in the United States Patent Office in Liber C-133, page 618 of the Transfers of Patents, assigned to Your Orator, The Cleveland Trust Company, its successors and assigns, the entire right, title and interest in, to and under said Letters Patent, together with the right to sue for, collect and retain damages and profits for past infringements of said Letters Patent; whereby plaintiff, The Cleveland Trust Company became vested with and now holds the entire right, title and interest in, to and under the aforesaid Letters Patent No. 1,256,265, and the right to sue for, collect and retain damages and profits for past infringement of said Letters Patent, as will more fully and at large appear upon production in this Court of the assignments aforesaid or duly authenticated copies thereof.

24.

That heretofore and prior to the 30th day of November, 1917, Edward J. Gulick, a citizen of the United States then residing in Mishawaka, County of St. Joseph, and State of Indiana was the original, first and true inventor of certain new and useful improvements in Pistons, fully described in application for Letters Patent of the United States, Serial No. 204,661, which invention was not known or used by others in this country or patented or described in any printed publication in this or any foreign country, prior to his invention thereof, or more than two years prior to his said application for Letters Patent therefor; that said invention had not been in public use or on sale in this country for more than two years prior to said application for Letters Patent, had not been abandoned to the public and had not been patented or caused to be patented by him or his legal representatives or assigns in any foreign country upon an application filed more than twelve months prior to the filing of said application for Letters Patent of the United States; that on or about November 30, 1917, said Edward J. Gulick made due application to the Commissioner of Patents of the United States in accordance with the then existing Acts of Congress, for Letters Patent of the United States for said invention or improvements and, having in all respects complied with the conditions and requirements of said Acts of Congress, on the 21st

day of July, 1931, Letters Patent of the United States No. 1,815,773 were signed, sealed and executed in due form of law for the said invention, and were issued and delivered unto Plaintiff, The Cleveland Trust Company, its successors and assigns, as assignee of the entire right, title and interest of said Edward J. Gulick, for the term of seventeen years from said 21st day of July, 1931, thereby granting to it the sole and exclusive right to make, use and sell to others to be used, throughout the United States, its territories and dependencies, the aforesaid invention or improvements, all as by said Letters Patent or a duly authenticated copy thereof in Court to be produced and shown to Your Honor, as will more fully and at large appear.

25.

That prior to the grant of aforesaid Letters Patent No. 1,815,773, said Edward J. Gulick assigned to the Packard Motor Car Company of Detroit, Michigan, his entire right, title and interest in and to the invention set forth and described in the aforesaid application for Letters Patent Serial No. 204,661 by an instrument in writing dated Nov. 23, 1917 that was duly recorded in the United States Patent Office on or about the 30th day of November, 1917, in Liber J-103, page 468 of the Transfers of Patents; whereby said Packard Motor Car Company of Detroit, Michigan, its successors and assigns became vested with the entire right, title and interest in and to the aforesaid invention and in and to said application for Letters Patent Serial No. 204,661 and in and to any Letters Patent issuing pursuant thereto.

26.

That, on or about September 11, 1922 and prior to the grant of aforesaid Letters Patent No. 1,815,773, the Packard Motor Car Company of Detroit, Michigan, assigned to The Cleveland Trust Company of Cleveland, Ohio, its entire right, title and interest in and to the invention set forth and described in the aforesaid application for Letters Patent Serial No. 204,661 and in and to said application for Letters Patent by an instrument in writing dated September 11, 1922 that was duly recorded in the United States Patent Office on or about the 13th day of September, 1922, in Liber 8-116, page 485 of the Transfers of Patents, whereby said The Cleveland Trust Company of Cleveland, Ohio, its successors

and assigns became vested with, has continuously held and now owns the entire right, title and interest in and to said invention and in and to said application for Letters Patent Serial No. 204,661 and in and to said Letters Patent of the United States No. 1,815,773 that issued pursuant thereto.

27.

That the validity of each of the aforesaid Letters Patent has been recognized and acquiesced in by the public generally since the date of issue of each of said patents, except for those defendants and others encouraged by them. At various times said patents have been especially recognized and acquiesced in by parties who have discontinued infringement thereof and who have made due amends to plaintiff. Others have taken licenses under said patents. Substantial and material royalties have been paid to the plaintiff under said patents. The licensees under said patents have manufactured and sold the pistons covered by said patents in great numbers. These pistons have gone into extensive and successful use. Licensees under said patents have built plants and established organizations for the manufacture and sale of such pistons on the strength of and by reason of their confidence in the patents here in suit.

28.

That plaintiff has duly notified each and both of these defendants of their infringement of each of the aforesaid Letters Patent and has requested them and each of them to desist, but defendants and each of them have continued their infringements in defiance of said notices.

29.

These defendants, The Simmons Manufacturing Company and Sterling Products Corporation, jointly and severally, subsequent to the grant of said Letters Patent and prior to the filing of this Bill of Complaint and within six years hereof, with full knowledge of each of said Letters Patent and without the consent of plaintiff, The Cleveland Trust Company, but in violation of its rights, and after due notice, has within the Judicial District of this Court and elsewhere within the United States, infringed each of the aforesaid Letters Patent

and contributed to the infringement thereof by making and/or causing to be made, by using and/or causing to be used, and selling and/or causing to be sold in this Judicial District and elsewhere within the United States, Pistons for Internal Combustion Engines embodying jointly and severally the inventions of said Letters Patent and in infringement thereof.

That in so infringing, defendants have realized and received great gains and profits which should, and otherwise would, have been received by plaintiffs, each and both of them, and defendants, and each and both of them, have correspondingly inflicted on plaintiffs great loss and damage, but to what extent, plaintiffs cannot now set forth and therefore pray discovery with respect thereto; that plaintiffs fear and have reason to fear that defendants will continue their aforesaid infringing acts to an even greater extent unless enjoined by this Honorable Court; and defendants, and each of them, have and will thereby induce others to venture to infringe the said Letters Patent aforesaid, to the irreparable injury of plaintiffs.

30.

Because of these premises, plaintiffs are without adequate or sufficient remedy at law and therefore bring this suit in equity.

WHEREFORE, the plaintiffs pray:

First. That a writ of subpoena ad respondum may issue out of and under the seal of this Court requiring each and both of said defendants, The Simmons Manufacturing Company and Sterling Products Corporation, to appear and make answer to this Bill of Complaint, but not under oath, answer under oath being hereby expressly waived, to the best and utmost of their knowledge, information and belief and to do and perform such things as to this Court may seem meet and just;

Second. That this Court may grant an injunction, perpetual as well as temporary, enjoining each and both of said defendants, The Simmons Manufacturing Company and Sterling Products Corporation, as well as each of the directors, officers, associates, successors, agents, attorneys and employees, and every person acting for or on the behalf of each and/or both of said defendants, from further infringing or contributing to the infringement of any and/or each of said Letters Patent;

Third. That said defendants, The Simmons Manufacturing Company and Sterling Products Corporation, and each and both of them, may be required to account before a Master in the usual manner of accountings for the gains, profits and advantages due to and arising out of their aforesaid infringements and contributory infringements herein complained about, as well as the damages sustained by plaintiffs, by reason of said infringements;

Fourth. That said defendants, The Simmons Manufacturing Company and Sterling Products Corporation, each and both of them, be required to pay over to plaintiffs, the gains and profits so accounted for and also the damages sustained by plaintiffs as the result of said infringements and contributory infringements;

Fifth. That the defendants, each and both of them, be decreed to pay the costs, charges and disbursements of this suit;

Sixth. That the plaintiffs may have such other and further relief as the equity of the case may require, and as to this Honorable Court may seem just and proper.

THE CLEVELAND TRUST COMPANY,

By:

Vice-President.

CHEYSLER CORPORATION,

By:

*Vice-President, The
Cleveland Trust Company.*

.....
Solicitor for Plaintiffs.

AFFIDAVIT

STATE OF OHIO,
COUNTY OF CUYAHOGA, ss.

On this 1st day of August, 1931, before the undersigned, a Notary Public within and for the County and State aforesaid, personally appeared R. A. Malm and made oath that he is the Vice President of The Cleveland Trust Company, the above named complainant, that he has read the foregoing Bill of Complaint, and knows the contents thereof, and that the same is true, except as to those matters stated on information and belief, and as to those matters he believes it to be true.

D. F. KING,

Notary Public.

DEFENDANTS' EXHIBIT 5-J.

Letter, dated Oct. 17, 1932 from Anna Landon Duke to
J. H. Bruninga.

(Filed January 27, 1934.)

Iowa City, Iowa, Oct. 17, 1932

Mr. J. H. Bruninga,
St. Louis, Mo.

Dear Sir:

I have carefully gone over the sheets of record which you sent me, and have placed my initials "A.L.D." on the backs of the ones that I recognize as work done by me at the M. K. Weems place.

Trusting that this will give you the needed help, I am,

Yours truly,

(MRS.) ANNA LANDON DUKE.

DEFENDANTS' EXHIBIT 5-K₁.

Letter, dated May 4, 1915, from Walter L. Schoengarth
to Louis Bagger & Co.

(Filed January 27, 1934.)

Rec'd May 10 1915

Am't 5

Ack'd May 10

Ans'd May 13 1915

Ironwood, Mich.,

May 4, 1915.

Louis Bagger & Co., Counsellors at Law,
Washington, D. C.

Gentlemen:

Enclosed find \$5.00 five dollars for first examination on invention which I call The Adjustable Piston. I am sending you model by express. Hoping you will all O.K. I remain

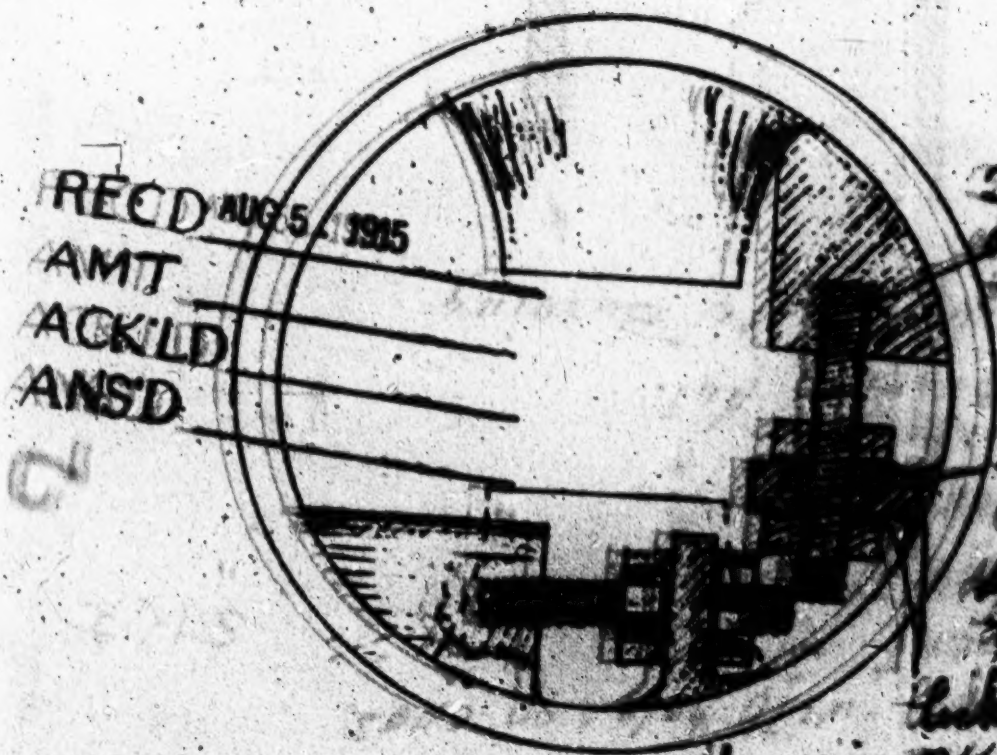
Yours truly,

WALTER L. SCHOENGARTH.

202 Fredrick St.

P. S. You will also find sketch and write-up on same.

2305



Should in
adjustment
on belt

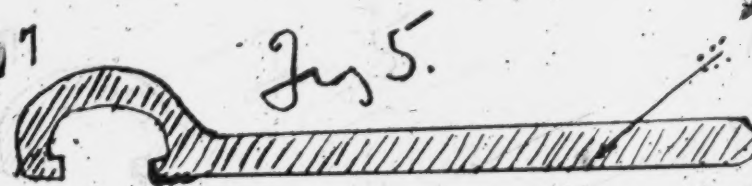
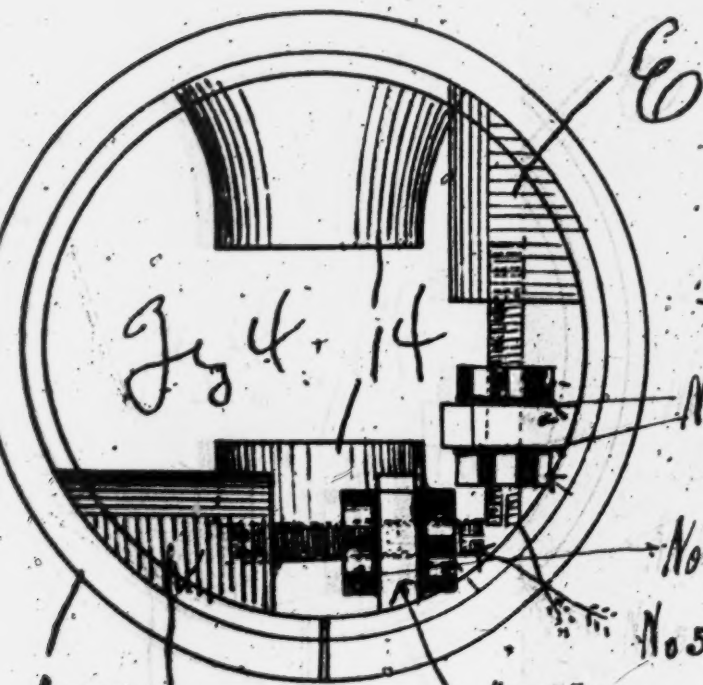
Alarm
drilled
holes.

Lock washer

and more O.K.

DEFENDANTS' EXHIBIT 5-K, (1).
Tracing of Schwegarth Piston.
(Filed January 27, 1934.)

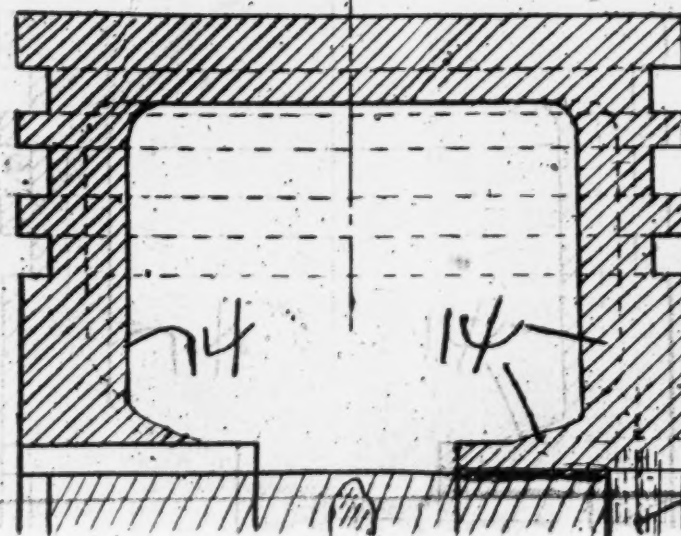
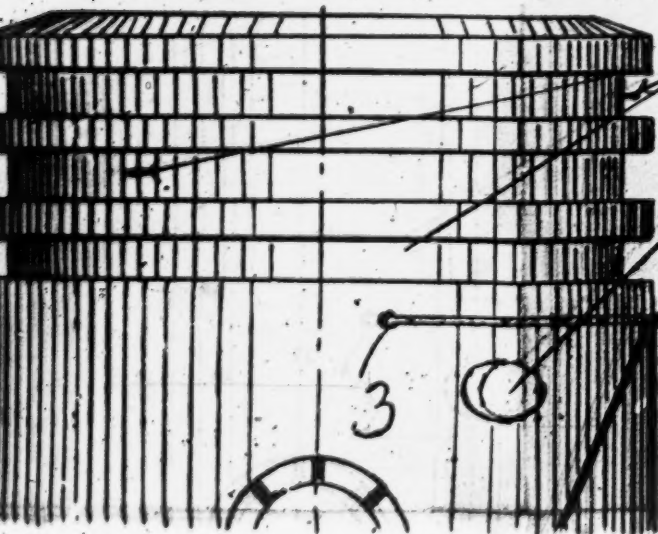
DEFENDANTS' EXHIBIT 5-K, (2).
Tracing of Schoengarth Piston.
(Filed January 27, 1934.)



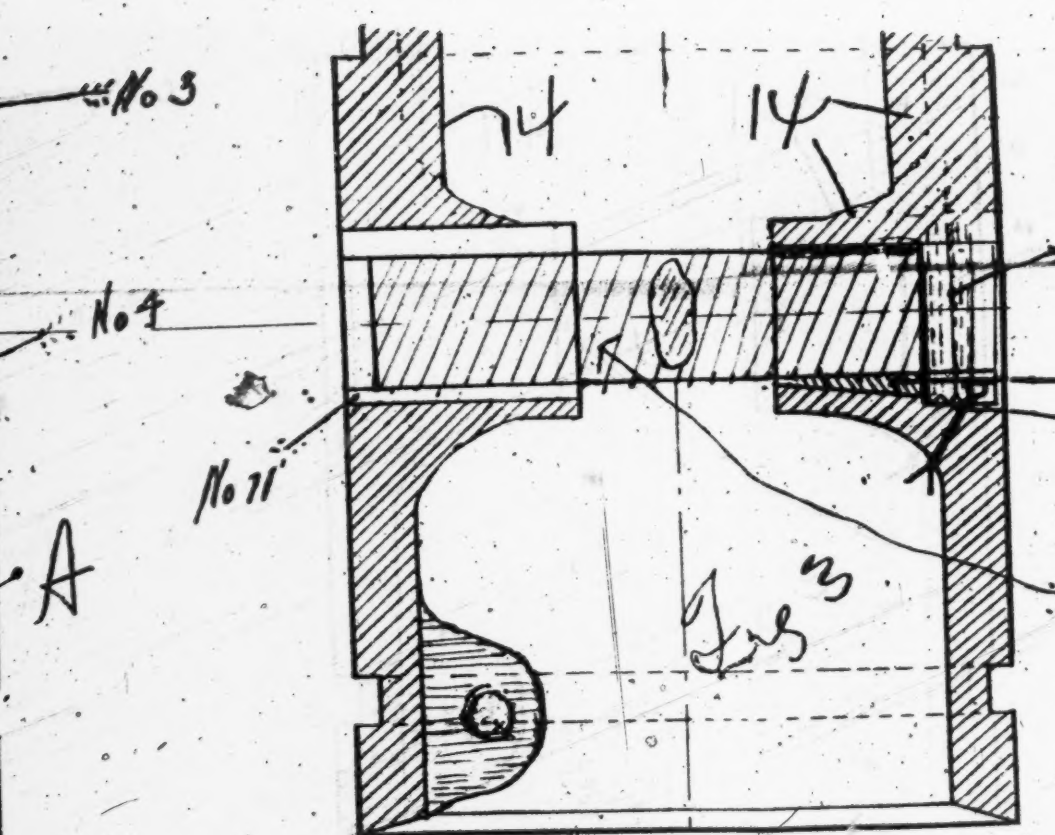
Wrench for Adjustment nuts

- No 1 Pin
- No 2 Ring
- No 3 Upper
- No 4 Adjust
- No 5 Adjust
- No 6 Adjust
- No 7 Lock
- No 8 Taper
- No 9 Taper
- No 10 Collar

- No 11 Plain Bushing
- No 12 Cross Head F
- No 13 Convenient Wrench



No 8



FRONT VIEW of R^N

CROSS SECTION THRU A-B

Walter L. Schoengarth.

May 9th 1915

Iron Wood.

Michigan.

RECD MAY 10 1915
AMT
ACKLD MAY 10
ANSD

Front
Positi

No. 1 Piston

No. 2 Ring pins.

No. 3 Upper Slot - with holes on ends.

No. 4 Adjustment Slot

No. 5 Adjustment studs.

No. 6 Adjustment Nuts

No. 7 Lock Washers

No. 8 Take up Bushing Nut.

No. 9 Take up or Adjustable Bushing

No. 10 Collar pin

5122

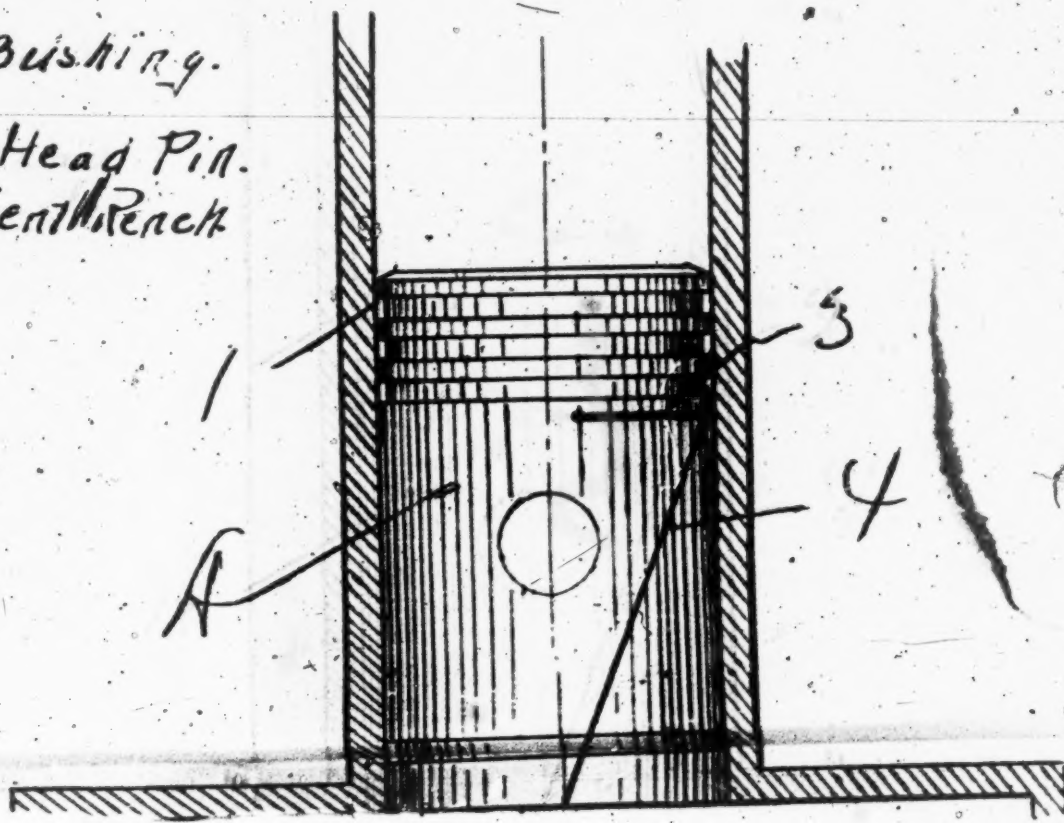
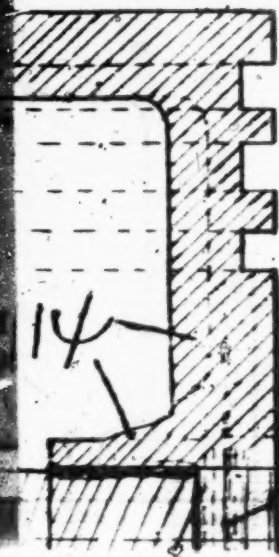
No. 13

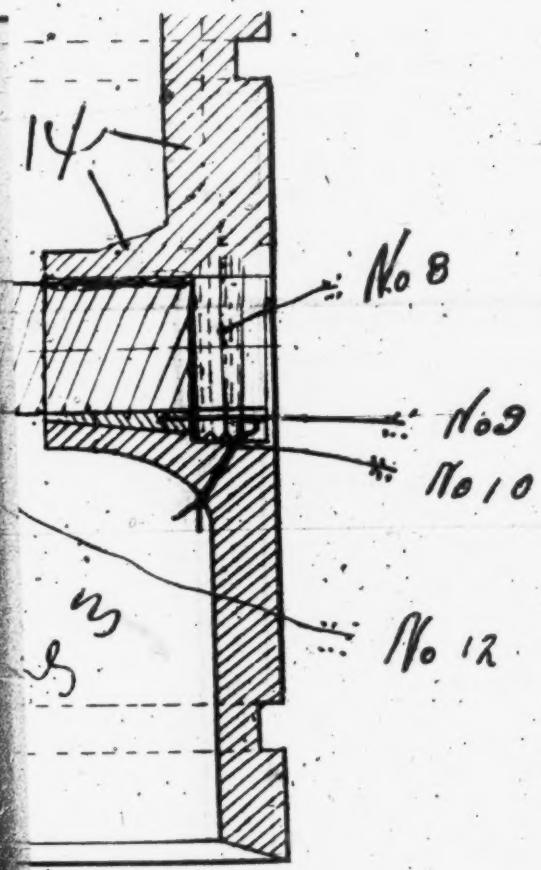
Adjustment nuts

No. 11 Plain Bushing.

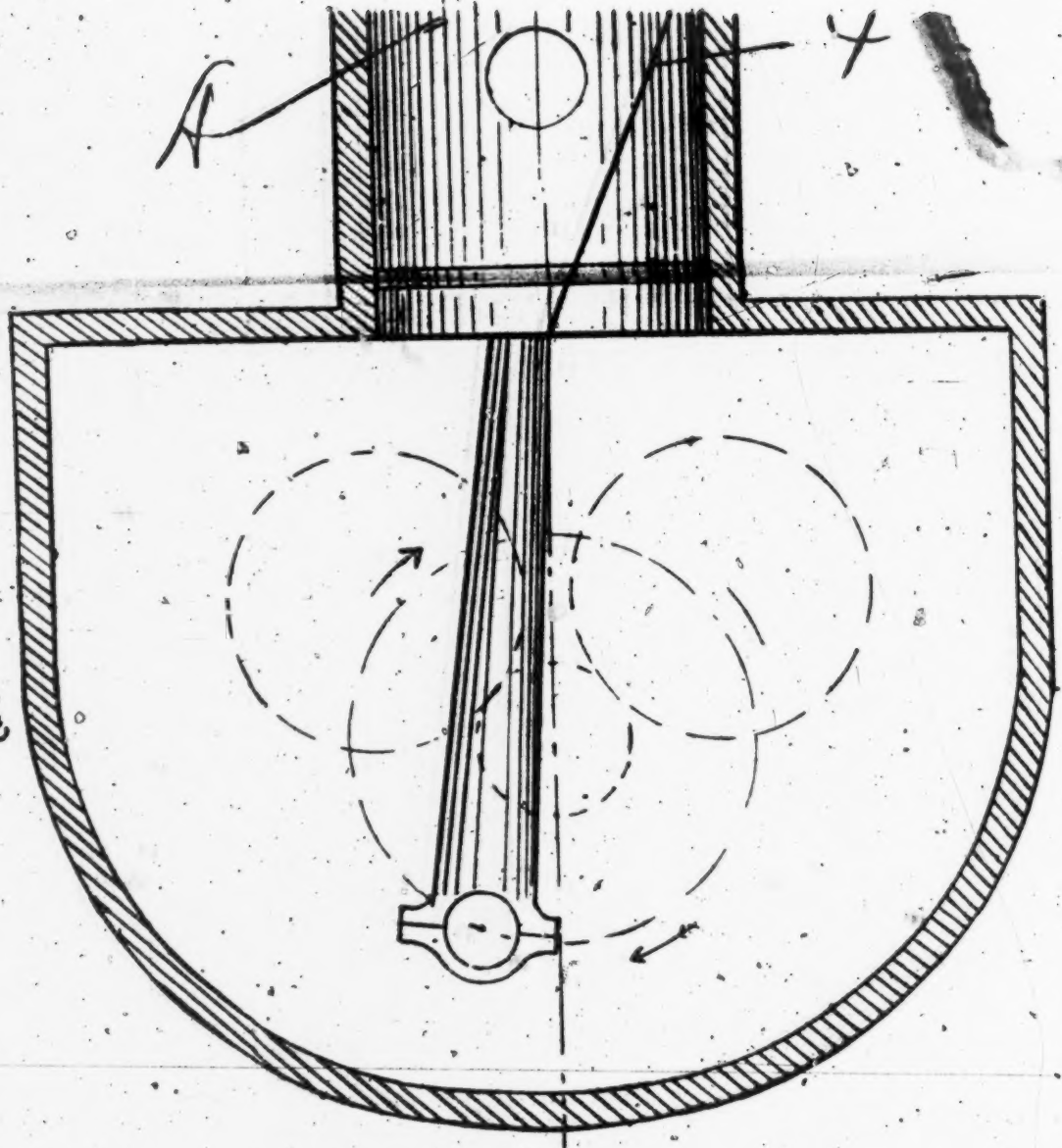
No. 12 Cross Head Pin.

No. 13 Convenient Bench





SECTION THRU A-B

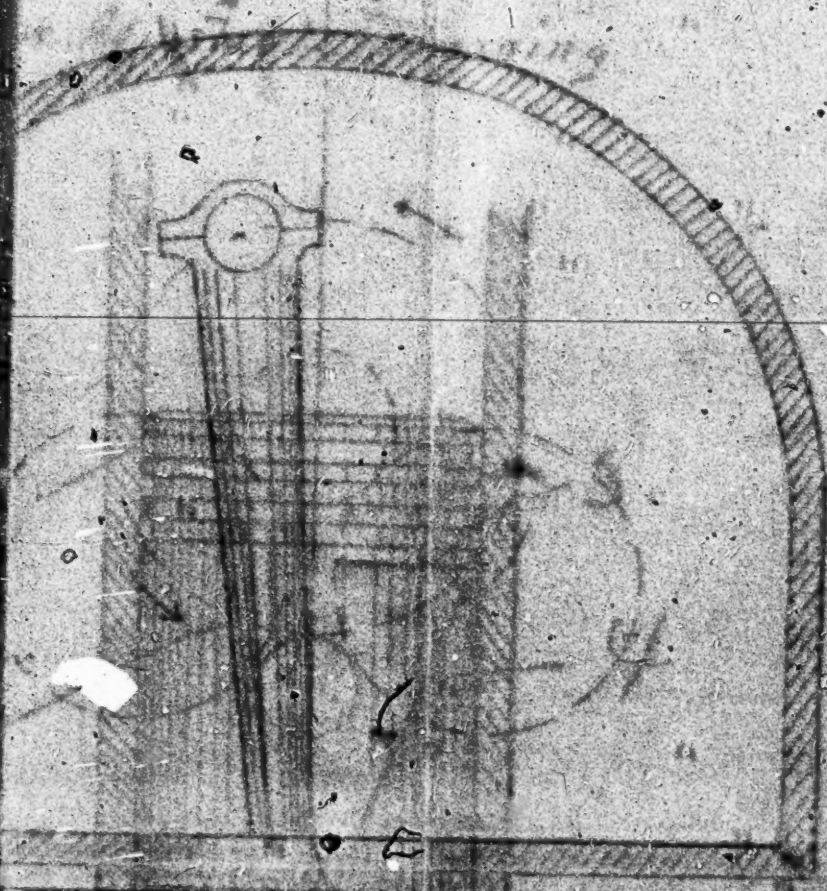


RECD MAY 10 1915
 AMT
 ACKLD may 10
 ANSD

Front View of Motor Showing
 Position of Piston

MAN.

Handwritten notes, likely bleed-through from the reverse side of the page. The text is mostly illegible due to fading and bleed-through, but appears to contain technical or descriptive information.



DEFENDANTS' EXHIBIT 5-K.

Three Page Description by Schoengarth of
"The Adjustable Gas Engine Piston."

(Filed January 27, 1934.)

Rec'd May 10 1915.

Ack'd May 10

THE ADJUSTABLE GAS ENGINE PISTON.

This piston is made for the purpose of preventing what is called piston knock and flutter. It can be adjusted according to wear and last the life time of the motor being quiet without knock or flutter. This prevents reboring and new pistons.

It also can be ground in according to the repairman's or builder's desire; which cuts away all rough surfaces and then be adjusted to a more perfect fit.

As experience has taught, a lap joint or leak proof ring with a good fit in grooves worn to fit cylinder snugly will prevent leakage and give better compression than new rings.

This piston is to be fitted with either such rings.

The cross head bushing at No. 9 are also adjustable by taking out bushing and cutting slot, placing in a few liners, the bushing may be lined up to fit cross head pin then drawn up with take-up nut No. 8 which follows bushing. This nut is securely held in place with cotter pin No. 10.

The bushing seat is reinforced to top of piston as shown in drawing and model A. B.

This piston can also be made with plain bushings if desired.

Small pins are inserted at upper ring grooves to prevent rings from shifting.

Two small holes are drilled at ends of slot No. 3.

Slot 4 is cut diagonally for two purposes first to prevent wear 2nd for the convenience of getting at upper & lower piston adjustment.

The piston adjustment is taken up in two places 1st the upper adjustment shown at "C", 2nd lower adjustment shown at "D".

This adjustment is composed of a stud with jam nut and lock washers on each side of lug.

The piston is to be made of cast steel or some malleable metals.

The cross head pin bushings are to be made of bronze or brass.

The take-up nuts, studs, and jam nuts are to be made of soft steel.

The lock washers to be made of tempered steel.

The piston is to be placed in motor as shown at motor view. This being for the purpose of keeping solid side of piston on explosion wall or the side of cylinder where the explosion or combustion forces piston against cylinder wall when on the power stroke. Looking from the front, slot to be on the right side. See view or motor view at right of sketch.

Sig. WALTER L. SCHOENGARTH.

DEFENDANTS' EXHIBIT 5-K.

Letter, dated May 13, 1915, from Louis Bagger & Co.
to Walter L. Schoengarth.

(Filed January 27, 1934.)

May 13, 1915.

Mr. Walter L. Schoengarth,
Ironwood, Mich.

Dear Sir:

In further reply to your letter of May 4th we have to inform you that we have completed the search on the Adjustable Piston, and found nothing which would, in our opinion, prevent the grant of a patent to you.

Upon receipt of your instructions to proceed and the remittance of the first installment of fees amounting to Twenty Dollars (\$20.00) we will prepare the papers and send them to you for your review and execution.

Thanking you for the favor and awaiting your further commands, we remain

Yours very truly,

LOUIS BAGGER & Co.

DEFENDANTS' EXHIBIT 5-K₁

Letter, dated May 22, 1915, from W. L. Schoengarth to
Louis Bagger & Co.

(Filed January 27, 1934.)

Rec'd May 27 1915

Am't 20

Ans'd May 27 1915

Ironwood Mich

May 22' 1915

Louis Bagger & Co., Counsellors at Law,
Washington D. C.

Gentlemen

Enclosed find \$20.00 twenty dollars for preparation
papers on execution.

Yours truly,

W. L. SCHOENGARTH.

P. S. When sending mail please place street no.
202 Fredrick St.

Credited

DEFENDANTS' EXHIBIT 5-K₂

Letter, dated May 27, 1915, from Louis Bagger & Co.
to W. L. Schoengarth.

(Filed January 27, 1934.)

May 27, 1915.

Mr. W. L. Schoengarth,
202 Fredrick St.,
Ironwood, Mich.

Dear Sir:

Your letter of the 22nd inst. at hand this A. M. with
Twenty (\$20) Dollars covering first installment of fees
re. patent application on your improved Piston, for which
please accept our thanks.

This matter will have our attention, and we shall
forward complete application papers to you at an early
date.

Very truly yours,

H.
credited

LOUIS BAGGER & Co.

DEFENDANTS' EXHIBIT 5-K.

Letter dated July 29, 1914, from Walter L. Schoengarth
to Louis Bagger & Co.

(Filed January 27, 1934.)

Rec'd Aug 5 1915

Am't 35

Ans'd Aug 5 1915

Ironwood Mich.

July 29, 1914

Louis Bagger & Co., Pat Att'ys.
Washington D. C.

Dear Sir,—

Enclosed find P. O. money order for \$35.00 thirty five dollars for patent execution on adjustable piston. Also find rough drawing showing adjustment. You need not change reading on execution papers only show in drawing that abutment is threaded & stud also to end. The lug has a plain drilled hole. Otherwise all is O.K. Am well pleased. Hoping to hear from you soon, I remain,

Yours truly,

WALTER L. SCHOENGARTH.

DEFENDANTS' EXHIBIT 5-K.

Letter, dated Aug. 5, 1915, from Louis Bagger & Co. to
Walter L. Schoengarth.

(Filed January 27, 1934.)

August 5, 1915.

Mr. Walter L. Schoengarth,
Ironwood, Mich.

Dear Sir:

Yours of the 29th ult. has just been received together with duly executed papers for applying for letters patent for improved Adjustable Gas Engine Pistons and Thirty Five Dollars (\$35.00) covering balance of first Government and Attorney's fees in full thereon, also a little drawing showing the improvement, for all of which, please accept our thanks.

The drawings will now be made and the case will be filed just as soon as they are completed and will be vigorously prosecuted.

Very truly yours,

H/C

LOUIS BAGGER & Co.

DEFENDANTS' EXHIBIT 5-K.

**Certified Copy of Application Papers of the Schoengarth
Patent No. 1,174,092.**

(Filed January 27, 1934.)

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DEPARTMENT OF COMMERCE**UNITED STATES PATENT OFFICE**

To all persons to whom these presents shall come, Greeting:

THIS IS TO CERTIFY that the annexed is a true copy from the records of this office of the Petition, Specification, Oath and Drawings, as originally filed, October 1, 1915, Serial Number 53,625 in the matter of the Letters Patent of Walter L. Schoengarth, Number 1,174,092, Granted March 7, 1916, for Improvement in Adjustable Gas-Engine Pistons.

IN TESTIMONY WHEREOF I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the City of Washington, this twenty-first day of March, in the year of our Lord one thousand nine hundred and thirty-three and of the Independence of the United States of America the one hundred and fifty-seventh.

THOMAS E. ROBERTSON,

(Seal)

Commissioner of Patents.

ATTEST:

D. E. WILSON,

Chief of Division.

PETITION

(15 Rec'd Oct 1915 C. U. S. Pat. Office)

To the Commissioner of Patents:

Your petitioner **WALTER L. SCHOENGARTH**, a citizen of the United States and a resident of Ironwood, in the County of Gogebic, and State of Michigan, whose Post-office address is:—202 Fredrick St., Ironwood, Michigan, prays that Letters Patent may be granted to him for the improvement in **ADJUSTABLE GAS-ENGINE PISTONS**, as set forth in the annexed specification.

And he hereby appoints Vernon E. Hodges and Watts T. Estabrook, doing business as:—Louis Bagger & Co., Barrister Bldg.,—35 F Street N. W., Washington, D. C., his attorneys, with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to sign his name to the drawings, to receive the Letters Patent, and to transact all business in the United States Patent Office connected therewith.

Signed at Ironwood, in the County of Gogebic, and State of Michigan, this 27th day of July, 1915.

Sign full name: WALTER L. SCHOENGARTH.
(U. S. I. R. Documentary Stamp 25 Cents)

SPECIFICATION

To all whom it may concern:

Be it known, That I, WALTER L. SCHOENGARTH, a citizen of the United States, residing at Ironwood, in County of Gogebic, and State of Michigan, have invented certain new and useful improvements in ADJUSTABLE GAS-ENGINE PISTONS, of which the following is a specification:

53625—1

W. L. S.—Inv.

L. B. & Co.—Atty

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My invention relates to an Adjustable Gas Engine Piston, the object being to prevent what is called a piston knock and flutter, and in my present invention provision is made for adjusting the size of the piston according to rule, so that it can be made to last the lifetime of the motor. The result is, it is quiet, and without knock or flutter, thus rendering re-boring and new pistons unnecessary, prolonging the life and usefulness of the motor, and greatly reducing the cost of repair, etc.

My improved piston can be ground according to the ideas of the repairman or builder, doing away with all rough surfaces, after which it may be adjusted to a perfect fit in the cylinder-bore.

With these objects in view, my present invention comprises a piston which is transversely and diagonally slotted on one side, with means inside for expanding the piston to fit perfectly the bore of the cylinder. It further consists in bushings for the cross-head pin, which are capable of quick and accurate adjustment to take up wear.

In the accompanying drawings:—

Figure 1 is a view of the motor in vertical section,

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showing the position of piston;

Figure 2 is a side elevation of the piston;

Figure 3 is a sectional view on the line 3—3 of Figure 2;

Figure 4 is an end view looking into the piston; and

Figure 5 is a view of the wrench for adjusting nuts.

A, represents the piston, it being provided with the circumferential ring-grooves 1, 1, adapted to receive packing-rings, and ring-pins 2 are provided in these grooves to prevent the rings from shifting.

The piston has two slots, namely a transverse slot 3 cut nearly half-way thereacross on one side, and at each end of which a small hole 3' is drilled, and a diagonal slot 4 extending from the point near the center of the transverse slot 3 to one end of the piston. This slot is cut diagonally for two purposes, first, to prevent scar, and second, for convenience in making the upper and lower piston adjustment. The piston adjustment is taken up in two places, namely at the upper end of the diagonal slot and also at the lower end. The adjustment is through the two screws or studs 5 and 5' which turn in threaded orifices in the lugs C and D located at the upper and lower ends respectively of the piston, the inner ends of these screws or studs turning in the holes in the abutments E and F respectively.

Access is gained to these screws by a screw-driver inserted through the holes H and I respectively, and jamb-nuts 7 on these screws or studs have notched edges to receive the wrench 13 by which they are turned up

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tight by the lock-washer 7 against the lugs C and D:

To expand the piston to the size required, the nuts are loosened, and the screws are turned in the lugs to get the required expansion, after which the jamb-nuts are tightened up against the lugs, and in this way the piston may be re-fitted to the bore of the cylinder at any time without the necessity of re-boring or the purchase and substitution of new pistons. In fact this adjustment may be accomplished without removing the piston from the cylinder.

The ends of the cross-head pin 12 are supported in cross-head bushings 9, 9. These are preferably made of

bronze or brass, and split longitudinally, having an external taper so that they are compressible around the ends of the cross-head pins by means of the take-up bushing nuts 8 at either end, and a cotter-pin 10 is inserted to hold the bushing 8 against turning. It is evident that a plain bushing, such as shown in 11, might be used instead of a tapering, adjustable one as described. The bushing-seats 14 are preferably reinforced at top of piston, as shown in Figure 3.

The piston is placed in the motor, as shown in Figure 1, that is to say with the solid side of the piston toward the expansion wall or the side of cylinder where the explosion or combustion takes place and forces the piston against the cylinder wall when on the power stroke, thus bringing the slots 3 and 4 on the right side of the engine.

Obviously more or less slight changes might be made in the form and arrangement of the several parts described without departing from the spirit and scope of

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my invention, and hence I do not wish to limit myself to the exact construction herein set forth, but:—

I claim:

1. An expansible piston having a transverse and longitudinal slot therethrough, and adjustable locking means located internally for expanding the piston.

2. A piston transversely and longitudinally slotted, and screws supported on one side of the longitudinal slot and engaging a member on the opposite side thereof, whereby when turned in one direction the piston is expanded, and when turned in the opposite direction it contracts by its own elasticity.

3. A piston transversely and longitudinally slotted, and screws supported on one side of the longitudinal slot and engaging a member on the opposite side thereof, whereby when turned in one direction the piston is expanded, and when turned in the opposite direction it contracts by its own elasticity, and means for locking said adjusting means.

4. A piston transversely and longitudinally slotted, and having holes therethrough on one side of the longi-

4.

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tudinal slot, lugs and abutments located on opposite sides of the longitudinal slots and having orifices therein in alignment with the holes in the pistons, and screws extending through said orifices in the lugs and abutments, accessible through holes in the piston, for adjusting the piston.

5. A piston transversely and longitudinally slotted, and having holes therethrough on one side of the longitudinal slot, lugs and abutments located on opposite sides of the longitudinal slots and having orifices therein in alignment with the holes in the pistons, screws extending through said orifices in the lugs and abutments, accessible through holes in the piston, for adjusting the piston, and lock-nuts located on the screws on opposite sides of the lugs for locking the screw against turning to hold the piston in its adjusted position.

6. The combination with a piston, of a cross-head pin, a tapering adjustable bushing, and a take-up bushing-nut for moving the bushing endwise and contracting it around the cross-head pin.

7. The combination with a piston of a cross-head pin, a tapering adjustable bushing, and a take-up bushing-nut for moving the bushing endwise and contracting it around the cross-head pin, the bushing-nut externally screw-threaded to turn in a threaded orifice concentric with the outer end of the bushing, and means for locking the bushing-nut against turning.

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In testimony whereof I affix my signature, in the presence of two witnesses:

Witnesses:

Inventor

Sign full name—WALTER L. SCHOENGARTH.

OATH

STATE OF MICHIGAN }
COUNTY OF GOGEBIC } SS.

WALTER L. SCHOENGARTH, the above-named petitioner, being sworn, deposes and says that he is a citizen of the United States of America, and resident of Ironwood, County of Gogebic, and State of Michigan; that he verily believes himself to be the original, first and sole inventor of the improvement in ADJUSTABLE GAS-ENGINE PISTONS, described and claimed in the annexed specification; that he does not know and does not believe that the same was ever known or used before his invention or discovery thereof, or patented or described in any printed publication in any country before his invention or discovery thereof, or more than two years prior to this application, or in public use or on sale in the United States for more than two years prior to this application; that said invention has not been patented in any country foreign to the United States on an application filed by him or his legal representatives, or assigns, more than twelve months prior to this application; and that no application for patent on said improvement has been filed by him or his representatives, or assigns, in any country foreign to the United States, except as follows:

Sign full name—WALTER L. SCHOENGARTH.

Sworn to and subscribed before me this 27th day of July, 1915. Affix Seal Here.

(Notarial Seal)

HERMAN LARSON,

Notary Public.

Gogebic County, Michigan.

My commission expires July 29, 1917.

Fig. 1.

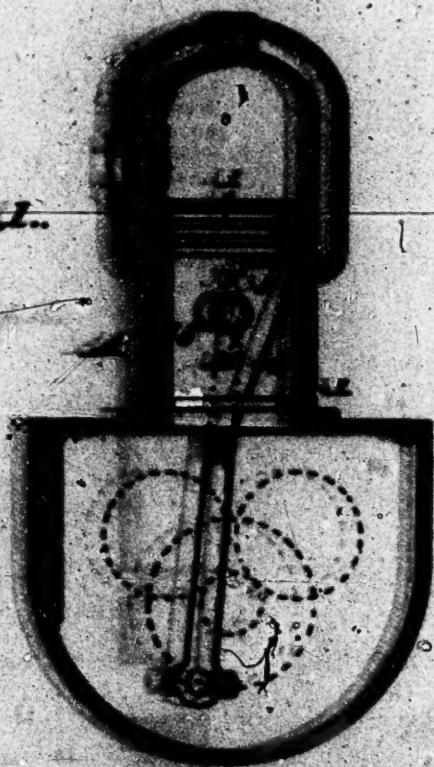


Fig. 2.

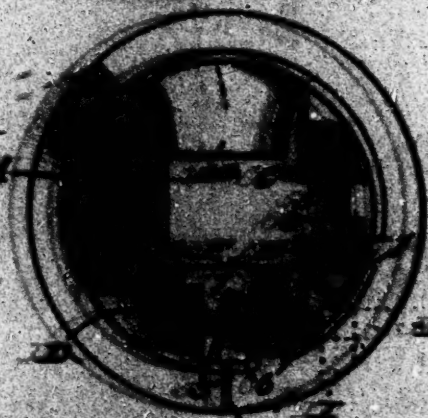
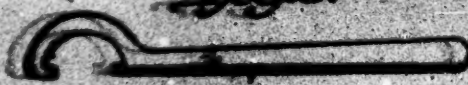
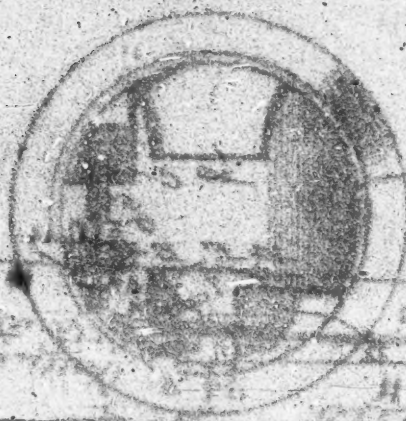
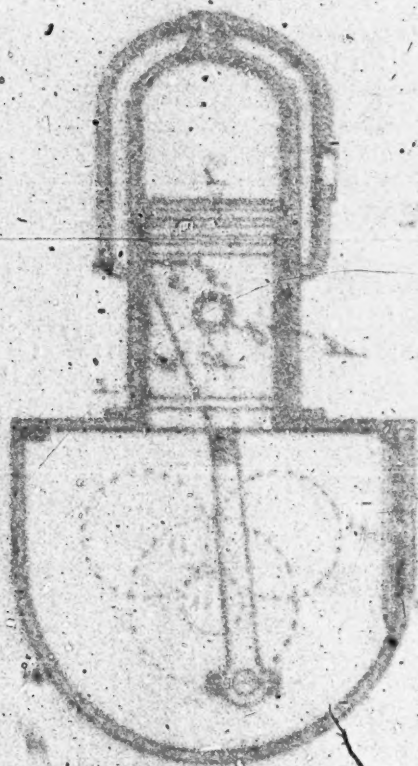


Fig. 3.



Inventor
J. H. P. R. 1870
His Attor.



DEFENDANT'S EXHIBIT

deposited April 2, 1874

Walter Schuyler

(Filed April 1874)

Fig. 2.

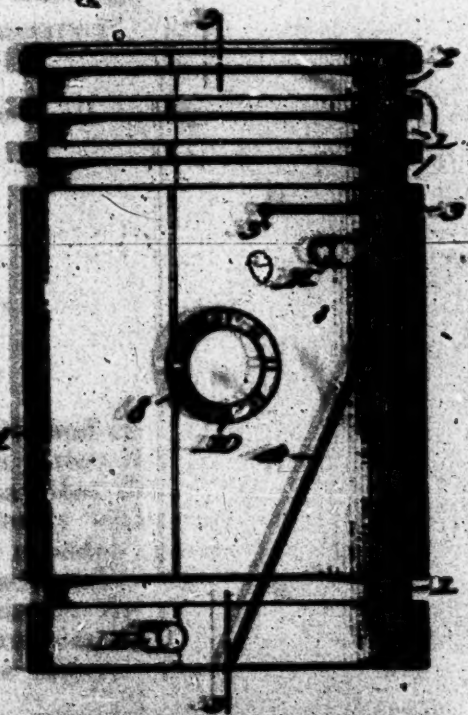
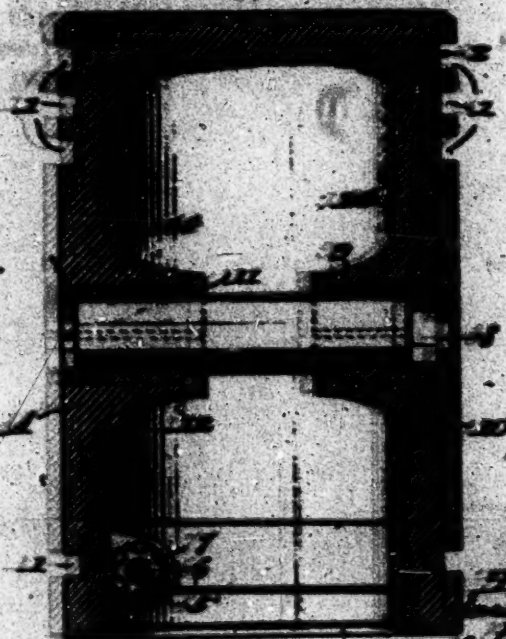
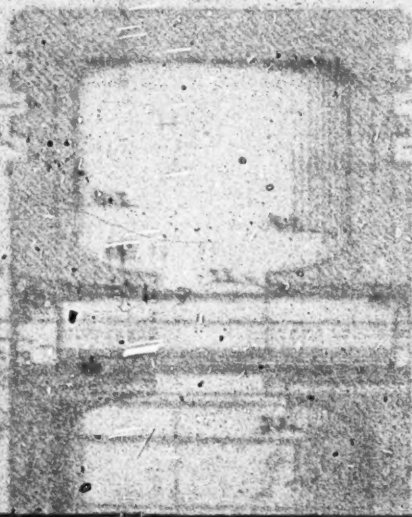
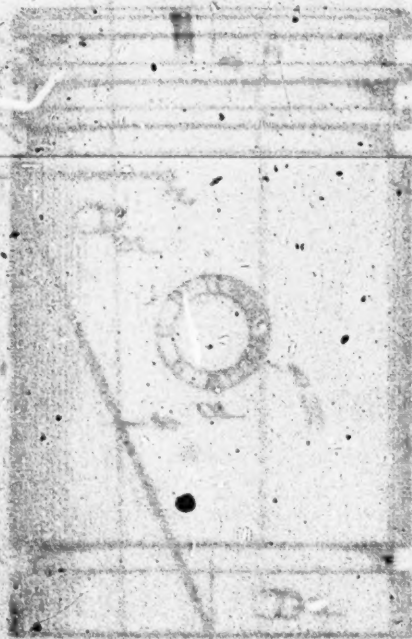


Fig. 3.



Witness:
Walter Schuyler
John Rogers
J. H. Rogers



DEFENDANTS' EXHIBIT 5-K₁₁

Letter, dated April 2, 1917, from Louis Bagger & Co. to
Walter Schoengarth.

(Filed January 27, 1934.)

LOUIS BAGGER & Co.
Patent Attorneys
Barrister Building
635 F Street N. W.
Washington, D. C.

Washington, D. C.
April 2, 1917.

Mr. Walter Schoengarth,
202 Fredrick Street,
Ironwood, Mich.

Dear Sir:

Yours of the 26th ult., and express package containing model of New Form Piston just received and in reply, we are pleased to say that this construction, in our judgment, will come clearly within the terms of your claim 1 which calls for a piston having transverse and longitudinal slots and adjustable means located internally for expanding the piston. Your bolts or screws, have this function and they are located to all intents and purposes internally and we believe the claim fully covers this change.

Notwithstanding this however, we advocate an additional patent in a case like this because you really have a new and probably patentable feature in the way of these bolts and nuts, which by being located in the slots act, when tightened to spread or expand the piston.

The point is this, if you do not patent this there is always more or less danger of someone else doing so, even though in making such a thing they would infringe your patent and it is always far better to have too many patents than too few.

If we have not made all perfectly clear, let us know and we shall write you more at length.

Trusting you have gotten where you have begun to realize something on this invention, we remain.

Very truly yours,

LOUIS BAGGER & Co.

VERNON E. HODGES
ATTORNEY AND COUNSELLOR AT LAW
PATENTS AND PATENT CAUSES
EARS BLDG., 13TH & E STS., N. W.
WASHINGTON, D. C.

DEFENDANTS EXHIBIT 6-K.
Envelope Sent to Walter L. Schoengarth at Cleveland.
(Filed January 27, 1934.)

VERNON E. HODGES
PATENT AND TRADE MARK LAWYER
605 T STREET NORTHEAST
WASHINGTON, D. C.

REMOVED TO EARLE BLDG.
13TH & E STS., N. W.

MR. WALTER L. SCHOENGARTH,
Hotel Cleveland,
Cleveland,
O H I O.

899

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Defendants' Exhibit 5-M, List of Patents

DEFENDANTS' EXHIBIT 5-M.
List of Patents to Packard Motor Co.
(Filed January 27, 1934.)

<i>Number</i>	<i>Applicant</i>	<i>Issue Date</i>	<i>Filing Date</i>	<i>Invention</i>
Re. 14,441	Vincent, Jesse G.	Mar. 5, 1918	Oct. 8, 1917	Motor-vehicle
1,304,733	Blaine, Walter E.	May 27, 1919	Sept. 10, 1917	Hydrocarbon-motor
1,315,050	Stout, William B.	Sept. 2, 1919	Nov. 8, 1917	Wheel
1,325,054	Stout, William B.	Dec. 16, 1919	Nov. 28, 1917	Aircraft
1,346,530	Church, Harold D.	Jul. 13, 1920	Sept. 29, 1917	Motor-vehicle
1,342,717	Lipps, Evrah C.	Jun. 8, 1920	Nov. 9, 1917	Metal-welding
1,345,943	McCain, George L.	Jul. 6, 1920	Sept. 29, 1917	Hydrocarbon-motor
1,356,641	McCain, George L.	Oct. 26, 1920	Sept. 15, 1917	Change-gear transmission
1,345,902	Vincent, Jesse G.	Jul. 6, 1920	Sept. 7, 1917	Pump for Motor-vehicle
1,382,954	Church, Harold D.	Jun. 28, 1921	Nov. 10, 1917	Hydrocarbon-motor
1,398,361	Church, Harold D.	Nov. 29, 1921	Aug. 8, 1917	Hydrocarbon-motor
1,374,066	Druar, Frank J.	Apr. 5, 1921	Nov. 17, 1917	Motor-vehicle
1,382,980	Hunt, Ormond E.	Jul. 28, 1921	Nov. 17, 1917	Battery-box
1,382,997	McCain, George L.	Jun. 28, 1921	Nov. 30, 1917	Pump-driving mechanism
1,377,858	Stout, William B.	May 10, 1921	Nov. 27, 1917	Aircraft
1,434,428	Church, Harold D.	Nov. 7, 1922	Oct. 12, 1917	Motor-vehicle
1,424,694	Vincent, Jesse G.	Aug. 1, 1922	Sept. 7, 1917	Motor-vehicle
1,455,986	Blaine, Walter E.	May 22, 1923	Aug. 8, 1917	Hydrocarbon motor
1,451,040	Gulick, Edward J.	Apr. 10, 1923	Nov. 30, 1917	Steering-rod connection
1,455,848	Moorehouse, Alfred	May 22, 1923	Sept. 28, 1917	Clutch
1,496,373	Hunt, Ormond E.	Jun. 3, 1924	Nov. 10, 1917	Aircraft
1,531,337	Hill, Lewis C.	Mar. 31, 1925	Oct. 26, 1917	Motor-vehicle.

CAPTION.

[Case No. 4046.]

UNITED STATES OF AMERICA,
NORTHERN DISTRICT OF OHIO,
EASTERN DIVISION, SS.

Record of the proceedings of the District Court of the United States within and for the Eastern Division of the Northern District of Ohio, in the causes and matters hereinafter stated, the same being finally disposed of at a regular term of said court begun and held at the City of Cleveland, in said district, on the first Tuesday in April, being the third day of said month, in the year of our Lord one thousand nine hundred and thirty-four and in the one hundred and fifty-eighth year of the Independence of the United States of America, to-wit, on Friday, the 27th day of July, A. D. 1934.

Honorable PAUL JONES,

United States District Judge.

THE CLEVELAND TRUST COMPANY,
CHRYSLER CORPORATION,

VS.

THE ABERDEEN MOTOR SUPPLY
COMPANY.

No. 4046 EQUITY.

Said action was commenced on the 17th day of October, A. D. 1931 and proceeded to final disposition at the term and day above written and during the progress thereof pleadings and papers were filed, process was issued and returned and orders of the court were made and entered in the order and on the dates hereinafter stated, to-wit:

BILL OF COMPLAINT.

(Filed October 17, 1931.)

[Case No. 4046.]

The Bill of Complaint in Case No. 4046 is identical in wording, except as regards the name of the Defendant, with the Bill of Complaint in Case No. 4045 printed at pages 2 to 13, both inclusive, of Vol. I.

MOTION OF DEFENDANT, THE ABERDEEN MOTOR SUPPLY COMPANY, FOR FURTHER AND BETTER STATEMENT AND FURTHER PARTICULARS.

(Filed November 9, 1931.)

[Case No. 4046.]

This Motion in Case No. 4046 is identical in wording, except as regards the name of the Defendant, with a similar Motion in Case No. 4045 printed at pages 14 and 15, both inclusive, of Vol. I.

ORDER ON MOTION OF DEFENDANT, THE ABERDEEN MOTOR SUPPLY COMPANY, FOR FURTHER AND BETTER STATEMENT, AND FURTHER PARTICULARS.

(Entered December 30, 1931 by Paul Jones, Judge.)

[Case No. 4046.]

This Order in Case No. 4046 is identical in wording, except as regards the name of the Defendant, with a similar Order in Case No. 4045 printed at page 16 of Vol. I.

PLAINTIFFS' BILL OF PARTICULARS.

(Filed January 8, 1932.)

[Case No. 4046.]

Plaintiffs' Bill of Particulars in this case is identical in wording, except as regards the name of the Defendant, with Plaintiffs' Bill of Particulars in Case No. 4045 printed at pages 16 and 17, both inclusive, of Vol. I.

PETITION OF JOHN H. BRUNINGA FOR LEAVE TO ENTER HIS SPECIAL APPEARANCE, IN ORDER TO ENTER A SPECIAL APPEARANCE ON BEHALF OF STERLING PRODUCTS CORPORATION, FOR THE SOLE AND ONLY PURPOSE OF OBJECTING TO THE JURISDICTION.

(Filed November 9, 1931.)

[Case No. 4046.]

This Petition in Case No. 4046, is identical in wording with a similar Petition in Case No. 4045 printed at pages 18 to 20; both inclusive, of Vol. I.

PRINTER'S NOTE:

The Letters attached to the foregoing Petition in Case No. 4046 are identical with those attached to the Petition in Case No. 4045, printed at pages 21 to 25, both inclusive, of Vol. I.

ORDER OF COURT GRANTING PETITION OF JOHN H. BRUNINGA FOR LEAVE TO ENTER SPECIAL APPEARANCE OF STERLING PRODUCTS, TO OBJECT TO JURISDICTION.

(Entered December 30, 1931 by Paul Jones, Judge.)

[Case No. 4046.]

This Order in Case No. 4046 is identical with the similar Order in Case No. 4045 printed at page 25 of Vol. I.

ANSWER OF DEFENDANT, THE ABERDEEN MOTOR SUPPLY COMPANY, TO BILL OF COMPLAINT.

(Filed February 1, 1932.)

[Case No. 4046.]

The Answer to the Bill of Complaint in Case No. 4046 is identical in wording, except as regards the name of the Defendant, with a similar Answer in Case No. 4045 printed at pages 26 to 41, both inclusive, of Vol. I.

NOTICE BY DEFENDANT, THE ABERDEEN MOTOR SUPPLY COMPANY, OF INTENTION TO TAKE DEPOSITIONS.

(Filed February 15, 1933.)

[Case No. 4046.]

This Notice in Case No. 4046 is identical in wording, except as regards the name of the Defendant, with a similar Notice in Case No. 4045 printed at page 41 of Vol. I.

SUPPLEMENTAL NOTICES BY DEFENDANT, THE ABERDEEN MOTOR SUPPLY COMPANY, OF INTENTION TO TAKE DEPOSITIONS, ATTACHED TO VENNER ET AL. DEPOSITIONS.

(Filed January 9, 1933.)

[Case No. 4046.]

The Supplemental Notices in Case No. 4046 are identical in wording, except as regards the name of the Defendant, with similar Supplemental Notices in Case No. 4045 printed at page 42 of Vol. I.

ORDER FOR REFERENCE TO AND APPOINTMENT OF SPECIAL MASTER.

(Entered November 7, 1932 by Paul Jones, Judge.)

[Case No. 4046.]

This Order in Case No. 4046 is identical in wording with a similar Order in Case No. 4045 printed at pages 43 and 44, both inclusive, of Vol. I.

STIPULATION OF PLAINTIFFS AND DEFENDANT, THE ABERDEEN MOTOR SUPPLY COMPANY, CONSOLIDATING CAUSE NO. 4046 WITH CAUSES NOS. 4045 AND 4047 FOR TRIAL.

(Filed January 11, 1933.)

[Case No. 4046.]

This Stipulation in Case No. 4046 is identical in wording, except as regards the Captions and Numbers of the cases referred to therein, with the similar Stipulation in Case No. 4045, printed at pages 45 and 46, both inclusive, of Vol. I.

ORDER GRANTING STIPULATION CONSOLIDATING EQUITY CAUSE NO. 4046 WITH CAUSES NOS. 4045 AND 4047 FOR TRIAL, ETC.

(Entered January 11, 1933 by Paul Jones, Judge.)

[Case No. 4046.]

This Order in Case No. 4046 is identical in wording, except as regards the Captions and Numbers of the case referred to therein, with the similar Order in Case No. 4045 printed at pages 46 and 47, both inclusive, of Vol. I.

AMENDMENT TO ANSWER OF DEFENDANT, THE ABERDEEN MOTOR SUPPLY COMPANY.

(Filed April 19, 1933.)

[Case No. 4046.]

This Amendment to Answer in Case No. 4046 is identical in wording, except as regards the name of the Defendant, with a similar Amendment to Answer in Case No. 4045 printed at page 48 of Vol. I.

STIPULATION OF PLAINTIFFS AND DEFENDANT, THE ABERDEEN MOTOR SUPPLY COMPANY, RE NARRATIVE OF TRANSCRIPT.

(Filed October 26, 1934.)

[Case No. 4046.]

This Stipulation in Case No. 4046 is identical in wording, except as regards the name of the Defendant, with a similar Stipulation in Case No. 4045 printed at page 49 of Vol. I.

ORDER GRANTING STIPULATION OF PLAINTIFFS AND DEFENDANT, THE ABERDEEN MOTOR SUPPLY COMPANY, FOR FILING NARRATIVE FORM TESTIMONY IN ONE CAUSE WITH REFERENCE THERETO IN EACH OF OTHER TWO CAUSES.

(Entered October 26, 1934 by Paul Jones, Judge.)

[Case No. 4046.]

This Order in Case No. 4046 is identical in wording, except as regards the name of the Defendant, with the similar Order in Case No. 4045 printed at page 49 of Vol. I.

ORDER APPROVING NARRATIVE FORM OF TESTIMONY.

(Entered February 26, 1935 by Paul Jones, Judge.)

[Case No. 4046.]

This Order in Case No. 4046 is identical in wording with the similar Order in Case No. 4045 printed at page 50 of Vol. I.

ACKNOWLEDGMENT OF SERVICE OF NARRATIVE FORM OF TESTIMONY.

(Filed February 26, 1935.)

[Case No. 4046.]

This Acknowledgment of Service in Case No. 4046 is identical in wording with a similar Acknowledgment of Service in Case No. 4045 printed at page 51, Vol. I.

NARRATIVE FORM OF TESTIMONY.

(Filed February 26, 1935.)

[Case No. 4046.]

The Narrative Form of Testimony in Case No. 4046 is identical in every respect with that in Case No. 4045 printed at pages 51 to 587, both inclusive, of Vol. I, and pages 599 to 1091, both inclusive, of Vol. II.

PLAINTIFFS' EXHIBITS.

The Exhibits of Plaintiffs called for by the Praecipe in Case No. 4046 and those withdrawn by the Order of Withdrawal in Case No. 4046 are identical with those included in or withdrawn from Case No. 4045; those included appear on pages 1321 to 1584, both inclusive, of Vol. III.

DEFENDANTS' EXHIBITS.

The Exhibits of Defendants called for by the Praecipe in Case No. 4046 and those withdrawn by the Order of Withdrawal in Case No. 4046 are identical with those included in or withdrawn from Case No. 4045; those included appear on pages 1585 to 1808, both inclusive, of Vol. III and pages 1809 to 2329, both inclusive, of Vol. IV.

The Order of the Withdrawal of Exhibits in Case No. 4046 is identical in wording with that in Case No. 4045, which appears on pages 1280 to 1281, both inclusive, of Vol. II.

**REPORT OF WILLIAM B. WOODS,
SPECIAL MASTER.**

(Filed January 27, 1934.)

[Case No. 4046.]

The Report of the Special Master in Case No. 4046 is identical in wording with that in Case No. 4045 printed on pages 1092 to 1189, both inclusive, of Vol. II.

**PLAINTIFFS' EXCEPTIONS TO THE REPORT
OF THE SPECIAL MASTER.**

(Filed February 26, 1934.)

[Case No. 4046.]

Plaintiffs' Exceptions to the Report of the Special Master in Case No. 4046 are identical in wording with those in Case No. 4045 printed on pages 1190 to 1228, both inclusive, of Vol. II.

**MEMORANDUM ON EXCEPTIONS TO
MASTER'S REPORT.**

(Filed July 6, 1934.)

[Case No. 4046.]

The Memorandum of Exceptions to Master's Report in Case No. 4046 is identical in wording with that in Case No. 4045, printed on page 1229 of Vol. II.

FINAL DECREE.

(Filed July 27, 1934.)

[Case No. 4046.]

The Final Decree in Case No. 4046 is identical in wording with that in Case No. 4045 printed on page 1230 of Vol. II.

PETITION FOR APPEAL.

(Filed October 17, 1934.)

[Case No. 4046.]

The Petition for Appeal in Case No. 4046 is identical in wording with that in Case No. 4045 printed on page 1231 of Vol. II.

ORDER ALLOWING APPEAL.

(Entered October 17, 1934 by Paul Jones, Judge.)

[Case No. 4046.]

The Order Allowing Appeal in Case No. 4046 is identical in wording with that in Case No. 4045 printed on pages 1231 and 1232, both inclusive, of Vol. II.

ASSIGNMENT OF ERRORS.

(Filed October 17, 1934.)

[Case No. 4046.]

The Assignment of Errors in Case No. 4046 is identical in wording with that in Case No. 4045 printed on pages 1232 to 1250, both inclusive, of Vol. II.

CITATION.

(Filed October 20, 1934.)

[Case No. 4046.]

The Citation in Case No. 4046 is identical in wording, except as regards the name of the Appellee, with that in Case No. 4045 printed on page 1251 of Vol. II.

BOND ON APPEAL.

(Filed October 23, 1934.)

[Case No. 4046.]

The Bond on Appeal in Case No. 4046 is identical in wording, except as regards the name of the Appellee, with that in Case No. 4045 printed on pages 1253 and 1254, both inclusive, of Vol. II.

ORDERS EXTENDING TIME.

[Case No. 4046.]

The Orders in Case No. 4046 Extending Time for Lodging the Narrative, filing Praecipe and filing the Transcript of Record in the United States Circuit Court of Appeals are identical with those in Case No. 4045 printed on pages 1255 to 1265, both inclusive, of Vol. II.

These Orders of Extension are abbreviated as follows:

<i>Time Extended</i>	<i>For Filing Praecipe and/or Lodging Narrative</i>	<i>For Filing Record In U. S. C. C. of A.</i>
<i>From</i>	<i>To</i>	<i>To</i>
Oct. 26/34	Nov. 24/34	Dec. 16/34
Nov. 22/34	Dec. 14/34	Dec. 26/34
Dec. 13/34	Dec. 21/34	.....
Dec. 20/34	Dec. 31/34	Jan. 25/35
Dec. 31/34	Jan. 14/35	.....
Jan. 14/35	Jan. 28/35	Feb. 23/35
Jan. 23/35	Feb. 18/35	.....
Feb. 18/35	Feb. 25/35	Mar. 25/35
Feb. 25/35	Mar. 15/35	.....
Mar. 15/35	Apr. 15/35	Apr. 25/35
Apr. 16/35	May 6/35	May 16/35
May 14/35	.....	June 15/35
June 12/35	.....	Aug. 15/35
Aug. 15/35	.....	Sept. 30/35

STIPULATION THAT APPEALS IN CAUSES NOS. 4045, 4046 AND 4047 BE CONSOLIDATED IN ONE PRINTED TRANSCRIPT OF RECORD, THAT EXHIBITS USED THEREIN MAY BE USED IN EACH OF SAID CASES AND THAT REPETITION OF SIMILAR PLEADINGS IN EACH BE ELIMINATED.

(Filed March 2, 1935.)

[Case No. 4046.]

This Stipulation in Case No. 4046 is identical in wording with that in Case No. 4045 printed on page 1266 of Vol. II.

**ORDER CONSOLIDATING APPEALS IN ONE
PRINTED TRANSCRIPT OF RECORD, THAT
EXHIBITS USED THEREIN MAY BE USED IN
EACH OF SAID CAUSES, AND FURTHER
ORDERING ELIMINATION OF REPETITION OF
SIMILAR PLEADINGS IN EACH CAUSE.**

(Entered March 2, 1935 by Paul Jones, Judge.)

[Case No. 4046.]

This Order in Case No. 4046 is identical in wording with that in Case No. 4045 printed on page 1267 of Vol. II.

STIPULATION RE DIGEST OF EXHIBITS.

(Filed May 4, 1935.)

[Case No. 4046.]

This Stipulation in Case No. 4046 is identical in wording with that in Case No. 4045 printed on page 1267 of Vol. II.

**ORDER GRANTING STIPULATION RE DIGEST
OF EXHIBITS.**

(Entered May 4, 1935 by Paul Jones, Judge.)

[Case No. 4046.]

This Order in Case No. 4046 is identical in wording with that in Case No. 4045 printed on page 1268 of Vol. II.

PRAECIPE.

(Filed May 6, 1935.)

[Case No. 4046.]

The Praecipe in Case No. 4046 is identical in wording with that in Case No. 4045 printed on pages 1269 to 1272, both inclusive, of Vol. II.

STIPULATION RE CERTIFICATION OF RECORD.

(Filed May 6, 1935.)

[Case No. 4046.]

The Stipulation Re Certification of Record in Case No. 4046 is identical in wording with that in Case No. 4045 printed on page 1273 of Vol. II.

**DEFENDANTS' MOTION FOR LEAVE TO ADD TO
THE RECORD IN THE ABOVE-ENTITLED
CASE DEFENDANTS' COUNTER PRAECIPE
AND CERTAIN LETTERS.**

(Filed May 14, 1935.)

[Case No. 4046.]

This Motion in Case No. 4046 is identical in wording with that in Case No. 4045 printed on pages 1273 to 1277, both inclusive, of Vol. II.

**ORDER DENYING MOTION OF DEFENDANTS FOR
LEAVE TO ADD TO RECORD DEFENDANTS'
COUNTER PRAECIPE AND CERTAIN LETTERS.**

(Entered May 15, 1935 by Paul Jones, Judge.)

[Case No. 4046.]

This Order in Case No. 4046 is identical in wording with that in Case No. 4045 printed on page 1277 of Vol. II.

**PETITION TO SUPPLY LAST EIGHT PAGES MISS-
ING FROM PLAINTIFFS' EXHIBIT 13 IN THE
ABOVE CAUSE ON APPEAL.**

(Filed June 18, 1935.)

[Case No. 4046.]

This Petition in Case No. 4046 is identical in wording with that in Case No. 4045 printed on page 1278 of Vol. II.

**ORDER GRANTING LEAVE TO SUPPLY LAST
EIGHT PAGES OF PLAINTIFFS' EXHIBIT
NO. 13.**

(Entered June 18, 1935 by Paul Jones, Judge.)

[Case No. 4046.]

This Order in Case No. 4046 is identical in wording with that in Case No. 4045 printed on page 1278 of Vol. II.

DEFENDANTS' COUNTER FRAGS

(Filed June 27, 1935.)

[Case No. 4046.]

Defendants' Counter Frags in Case No. 4046 is identical in wording with that in Case No. 4045 printed on page 1279 of Vol. II.

ORDER SETTLING CONTENTS OF RECORD.

(Entered July 6, 1935 by Paul Jones, Judge.)

[Case No. 4046.]

Order Settling Contents of Record in Case No. 4046 is identical in wording with that in Case No. 4045 printed on page 1279 of Vol. II.

ORDER FOR WITHDRAWAL OF EXHIBITS.

(Entered September 4, 1935 by Paul Jones, Judge.)

[Case No. 4046.]

Order for Withdrawal of Exhibits in Case No. 4046 is identical in wording with that in Case No. 4045 printed on pages 1280 and 1281, both inclusive, of Vol. II.

CAPTION.

[Case No. 4047.]

UNITED STATES OF AMERICA,
NORTHERN DISTRICT OF OHIO,
EASTERN DIVISION, vs.

Record of the proceedings of the District Court of the United States within and for the Eastern Division of the Northern District of Ohio, in the cause and matter hereinafter stated, the same being finally disposed of at a regular term of said court begun and held at the City of Cleveland, said district, on the first Tuesday in April, being the third day of said month, in the year of our Lord one thousand nine hundred and thirty-four and in the one hundred and fifty-eighth year of the Independence of the United States of America, to-wit, on Friday, the 27th day of July A. D. 1934.

Honorable PAUL JONES,
United States District Judge.

THE CLEVELAND TRUST COMPANY,
CHRYSLER CORPORATION,

vs.

THE F. E. BOWE SALES COMPANY.

No. 4047 Equity.

Said action was commenced on the 17th day of October, A. D. 1931 and proceeded to final disposition at the term and day above written and during the progress thereof pleadings and papers were filed, process was issued and returned, and orders of the court were made and entered in the order and on the dates hereinafter stated, to-wit:

BILL OF COMPLAINT.

(Filed October 17, 1931.)

[Case No. 4047.]

The Bill of Complaint in Case No. 4047 is identical in wording, except as regards the name of the Defendant, with the Bill of Complaint in Case No. 4045 printed at pages 2 to 13, both inclusive, of Vol. I.

MOTION OF DEFENDANT, THE F. E. ROWE SALES COMPANY, FOR FURTHER AND BETTER STATEMENT AND FURTHER PARTICULARS.

(Filed November 9, 1931.)

[Case No. 4047.]

This Motion in Case No. 4047 is identical in wording, except as regards the name of the Defendant, with a similar Motion in Case No. 4045 printed at pages 14 and 15, both inclusive, of Vol. I.

ORDER ON MOTION OF DEFENDANT, THE F. E. ROWE SALES COMPANY, FOR FURTHER AND BETTER STATEMENT AND FURTHER PARTICULARS.

(Entered December 30, 1931 by Paul Jones Judge.)

[Case No. 4047.]

This Order in Case No. 4047 is identical in wording, except as regards the name of the Defendant, with a similar Order in Case No. 4045 printed at page 16 of Vol. I.

PLAINTIFFS' BILL OF PARTICULARS.

(Filed January 8, 1932.)

[Case No. 4047.]

Plaintiffs' Bill of Particulars in this case is identical in wording, except as regards the name of the Defendant, with Plaintiffs' Bill of Particulars in Case No. 4045 printed at pages 16 and 17, both inclusive, of Vol. I.

PETITION OF JOHN H. BRUNINGA FOR LEAVE TO ENTER HIS SPECIAL APPEARANCE IN ORDER TO ENTER A SPECIAL APPEARANCE ON BEHALF OF STERLING PRODUCTS CORPORATION, FOR THE SOLE AND ONLY PURPOSE OF OBJECTING TO THE JURISDICTION.

(Filed November 9, 1931.)

[Case No. 4047.]

This Petition in Case No. 4047, is identical in wording with a similar Petition in Case No. 4045 printed at pages 18 to 20, both inclusive, of Vol. I.

PRINTER'S NOTE:

The Letters attached to the foregoing Petition in Case No. 4047 are identical with those attached to the Petition in Case No. 4045, printed at pages 21 to 25, both inclusive, of Vol. I.

ORDER OF COURT GRANTING PETITION OF JOHN H. BRUNINGA FOR LEAVE TO ENTER SPECIAL APPEARANCE OF STERLING PRODUCTS, TO OBJECT TO JURISDICTION.

(Entered December 30, 1931 by Paul Jones, Judge.)

[Case No. 4047.]

This Order in Case No. 4047 is identical with the similar Order in Case No. 4045 printed at page 25 of Vol. I.

ANSWER OF DEFENDANT, THE F. K. ROWE SALES COMPANY, TO BILL OF COMPLAINT.

(Filed February 1, 1932.)

[Case No. 4047.]

The Answer to the Bill of Complaint in Case No. 4047 is identical in wording, except as regards the name of the Defendant, with a similar Answer in Case No. 4045 printed at pages 26 to 41, both inclusive, of Vol. I.

NOTICE BY DEFENDANT, THE F. E. HOWE SALES COMPANY, OF INTENTION TO TAKE DEPOSITION.

(Filed February 15, 1932.)

(Case No. 4047.)

This Notice in Case No. 4047 is identical in wording, except as regards the name of the Defendant, with a similar Notice in Case No. 4045 printed at page 41 of Vol. I.

SUPPLEMENTAL NOTICES BY DEFENDANT, THE F. E. HOWE SALES COMPANY, OF INTENTION TO TAKE DEPOSITIONS, ATTACHED TO VERDICT AND ALLEGATIONS.

(Filed January 9, 1933.)

(Case No. 4047.)

The Supplemental Notices in Case No. 4047 are identical in wording, except as regards the name of the Defendant, with similar Supplemental Notices in Case No. 4045 printed at page 42 of Vol. I.

ORDER FOR REFERENCE TO AND APPOINTMENT OF SPECIAL MASTER.

(Entered November 7, 1933 by Paul Jones, Judge.)

(Case No. 4047.)

This Order in Case No. 4047 is identical in wording, with a similar Order in Case No. 4045 printed at pages 43 and 44, both inclusive, of Vol. I.

STIPULATION OF PLAINTIFFS AND DEFENDANT, THE F. E. HOWE SALES COMPANY, CONSOLIDATING CASE NO. 4047 WITH CASE NO. 4045 AND SET FOR TRIAL.

(Filed January 11, 1933.)

(Case No. 4047.)

This Stipulation in Case No. 4047 is identical in wording, except as regards the Captions and Numbers of the cases referred to therein, with the similar Stipulation in Case No. 4045, printed at pages 45 and 46, both inclusive, of Vol. I.

ORDER GRANTING STIPULATION CONSOLIDATING EQUITY CASE NO. 4047 WITH CAUSES NOS. 4045 AND 4046 FOR TRIAL, ETC.

(Entered January 11, 1933 by Paul Jones, Judge.)

(Case No. 4047.)

This Order in Case No. 4047 is identical in wording, except as regards the Captions and Numbers of the case referred to therein, with the similar Order in Case No. 4045 printed at pages 46 and 47, both inclusive, of Vol. I.

AMENDMENT TO ANSWER OF DEFENDANT, THE F. E. ROWE SALES COMPANY.

(Filed April 19, 1933.)

(Case No. 4047.)

This Amendment to Answer in Case No. 4047 is identical in wording, except as regards the name of the Defendant, with a similar Amendment to Answer in Case No. 4045 printed at page 48 of Vol. I.

STIPULATION OF PLAINTIFFS AND DEFENDANT, THE F. E. ROWE SALES COMPANY, RE NARRATIVE OF TRANSCRIPT.

(Filed October 26, 1934.)

(Case No. 4047.)

This Stipulation in Case No. 4047 is identical in wording, except as regards the name of the Defendant, with a similar Stipulation in Case No. 4045 printed at page 49 of Vol. I.

ORDER GRANTING STIPULATION OF PLAINTIFFS AND DEFENDANT, THE F. E. ROWE SALES COMPANY, FOR FILING NARRATIVE FORM TESTIMONY IN ONE CASE WITH REFERENCE THERETO IN EACH OF OTHER TWO CASES.

(Entered October 26, 1934 by Paul Jones, Judge.)

(Case No. 4047.)

This Order in Case No. 4047 is identical in wording, except as regards the name of the Defendant, with the similar Order in Case No. 4045 printed at page 49 of Vol. I.

ORDER APPROVING NARRATIVE FORM OF TESTIMONY.

(Entered February 26, 1935 by Paul Jones, Judge.)

[Case No. 4047.]

This Order in Case No. 4047 is identical in wording with the similar Order in Case No. 4045 printed at page 50 of Vol. I.

ACKNOWLEDGMENT OF SERVICE OF NARRATIVE FORM OF TESTIMONY.

(Filed February 26, 1935.)

[Case No. 4047.]

This Acknowledgment of Service in Case No. 4047 is identical in wording with a similar Acknowledgment of Service in Case No. 4045 printed at page 51, Vol. I.

NARRATIVE FORM OF TESTIMONY.

(Filed February 26, 1935.)

[Case No. 4047.]

The Narrative Form of Testimony in Case No. 4047 is identical in every respect with that in Case No. 4045 printed at pages 51 to 567, both inclusive, of Vol. I, and pages 599 to 1091, both inclusive, of Vol. II.

PLAINTIFFS' EXHIBITS.

The Exhibits of Plaintiffs called for by the Precept in Case No. 4047 and those withdrawn by the Order of Withdrawal in Case No. 4047 are identical with those included in or withdrawn from Case No. 4045; those included appear on pages 1321 to 1584, both inclusive, of Vol. III.

DEFENDANTS' EXHIBITS.

The Exhibits of Defendants called for by the Precept in Case No. 4047 and those withdrawn by the Order of Withdrawal in Case No. 4047 are identical with those included in or withdrawn from Case No. 4045; those included appear on pages 1585 to 1808, both inclusive, of Vol. III and pages 1809 to 2329, both inclusive, of Vol. IV.

The Order of the Withdrawal of Exhibits in Case No. 4047 is identical in wording with that in Case No. 4045, which appears on pages 1280 to 1281, both inclusive, of Vol. II.

**REPORT OF WILLIAM B. WOODS,
SPECIAL MASTER.**

(Filed January 27, 1934.)

[Case No. 4047.]

The Report of the Special Master in Case No. 4047 is identical in wording with that in Case No. 4045 printed on pages 1092 to 1189, both inclusive, of Vol. II.

**PLAINTIFFS' EXCEPTIONS TO THE REPORT OF
THE SPECIAL MASTER.**

(Filed February 26, 1934.)

[Case No. 4047.]

Plaintiffs' Exceptions to the Report of the Special Master in Case No. 4047 are identical in wording with those in Case No. 4045 printed on pages 1190 to 1228, both inclusive, of Vol. II.

**MEMORANDUM ON EXCEPTIONS TO MASTER'S
REPORT.**

(Filed July 6, 1934.)

[Case No. 4047.]

The Memorandum on Exceptions to Master's Report in Case No. 4047 is identical in wording with that in Case No. 4045 printed on page 1229 of Vol. II.

FINAL DECREE.

(Filed July 27, 1934.)

[Case No. 4047.]

The Final Decree in Case No. 4047 is identical in wording with that in Case No. 4045 printed on page 1230 of Vol. II.

PETITION FOR APPEAL

(Filed October 17, 1934)

[Case No. 4047.]

The Petition for Appeal in Case No. 4047 is identical in wording with that in Case No. 4045 printed on page 1231 of Vol. II.

ORDER ALLOWING APPEAL

(Entered October 17, 1934 by Paul Jones, Judge.)

[Case No. 4047.]

The Order Allowing Appeal in Case No. 4047 is identical in wording with that in Case No. 4045 printed on pages 1231 and 1232, of Vol. II.

ASSIGNMENT OF ERRORS

(Filed October 17, 1934)

[Case No. 4047.]

The Assignment of Errors in Case No. 4047 is identical in wording with that in Case No. 4045 printed on pages 1232 to 1250, both inclusive, of Vol. II.

CITATION

(Filed October 20, 1934)

[Case No. 4047.]

The Citation in Case No. 4047 is identical in wording, except as regards the name of the Appellee, with that in Case No. 4045 printed on page 1251 of Vol. II.

BOND ON APPEAL

(Filed October 23, 1934)

[Case No. 4047.]

The Bond on Appeal in Case No. 4047 is identical in wording, except as regards the name of the Appellee, with that in Case No. 4045 printed on pages 1253 and 1254, both inclusive, of Vol. II.

ORDERS EXTENDING TIME

[Case No. 4047]

The Orders in Case No. 4047 Extending Time for Lodging the Narrative, Filing Praecipe and Filing the Transcript of Record in the United States Circuit Court of Appeals are identical with those in Case No. 4045 printed on pages 1235 to 1265, both inclusive, of Vol. II.

These Orders of Extension are abbreviated as follows:

Time Extended	For Filing Praecipe and/or Lodging Narrative	For Filing Record In U. S. C. C. of A.
From	To	To
Oct. 26/34	Nov. 24/34	Dec. 16/34
Nov. 22/34	Dec. 14/34	Dec. 26/34
Dec. 13/34	Dec. 21/34	.....
Dec. 20/34	Dec. 31/34	Jan. 25/35
Dec. 31/34	Jan. 14/35	.....
Jan. 14/35	Jan. 28/35	Feb. 23/35
Jan. 23/35	Feb. 18/35	.....
Feb. 18/35	Feb. 25/35	Mar. 25/35
Feb. 25/35	Mar. 15/35	.....
Mar. 15/35	Apr. 11/35	Apr. 25/35
Apr. 16/35	May 6/35	May 16/35
May 14/35	.....	June 16/35
June 12/35	.....	Aug. 15/35
Aug. 15/35	.....	Sept. 30/35

STIPULATION THAT APPEALS IN CASES NO. 4045, 4046 AND 4047 BE CONSOLIDATED IN ONE PRINTED TRANSCRIPT OF RECORD, THAT HEREIN USED THEREIN MAY BE REPRODUCED IN SAID CASES AND THAT REPEITION OF SIMILAR OPERATIONS BE THEREBY ELIMINATED.

(Filed March 22, 1935)

GRACE TO WH [Case No. 4047] 2021.10.11

This Stipulation in Case No. 4047 is identical in wording with that in Case No. 4045 printed on page 1266 of Vol. II.

**ORDER CONSOLIDATING APPEALS IN ONE
PRINTED TRANSCRIPT OF RECORD, THAT
EXHIBITS USED THEREIN MAY BE USED IN
EACH OF SAID CAUSES, AND FURTHER
ORDERING ELIMINATION OF REPETITION OF
SIMILAR PLEADINGS IN EACH CAUSE.**

(Entered March 2, 1935 by Paul Jones, Judge.)

[Case No. 4047.]

This Order in Case No. 4047 is identical in wording
with that in Case No. 4045 printed on page 1267 of Vol.
II.

STIPULATION RE DIGEST OF EXHIBITS.

(Filed May 4, 1935.)

[Case No. 4047.]

This Stipulation in Case No. 4047 is identical in
wording with that in Case No. 4045 printed on page 1267
of Vol. II.

**ORDER GRANTING STIPULATION RE DIGEST
OF EXHIBITS.**

(Entered May 4, 1935 by Paul Jones, Judge.)

[Case No. 4047.]

This Order in Case No. 4047 is identical in wording
with that in Case No. 4045 printed on page 1268 of Vol.
II.

PRACIPE.

(Filed May 6, 1935.)

[Case No. 4047.]

The Praecipe in Case No. 4047 is identical in word-
ing with that in Case No. 4045 printed on pages 1269 to
1272, both inclusive, of Vol. II.

STIPULATION RE CERTIFICATION OF RECORD.

(Filed May 6, 1935.)

[Case No. 4047.]

The Stipulation Re Certification of Record in Case
No. 4047 is identical in wording with that in Case No.
4045 printed on page 1273 of Vol. II.

DEFENDANTS' MOTION FOR LEAVE TO ADD TO THE RECORD IN THE ABOVE-ENTITLED CASE DEFENDANTS' COUNTER PRINCIPLE AND CERTAIN LETTERS.

(Filed May 14, 1935.)

[Case No. 4047.]

This Motion in Case No. 4047 is identical in wording with that in Case No. 4045 printed on pages 1273 to 1277, both inclusive, of Vol. II.

ORDER DENYING MOTION OF DEFENDANTS FOR LEAVE TO ADD TO RECORD DEFENDANTS' COUNTER PRINCIPLE AND CERTAIN LETTERS.

(Entered May 15, 1935 by Paul Jones, Judge.)

[Case No. 4047.]

This Order in Case No. 4047 is identical in wording with that in Case No. 4045 printed on page 1277 of Vol. II.

PETITION TO SUPPLY LAST EIGHT PAGES MISSING FROM PLAINTIFFS' EXHIBIT 13 IN THE ABOVE CASE ON APPEAL.

(Filed June 18, 1935.)

[Case No. 4047.]

This Petition in Case No. 4047 is identical in wording with that in Case No. 4045 printed on page 1278 of Vol. II.

ORDER GRANTING LEAVE TO SUPPLY LAST EIGHT PAGES OF PLAINTIFFS' EXHIBIT NO. 13.

(Entered June 18, 1935 by Paul Jones, Judge.)

[Case No. 4047.]

This Order in Case No. 4047 is identical in wording with that in Case No. 4045 printed on page 1278 of Vol. II.

DEFENDANTS' COUNTER PRACISE

(Filed June 27, 1935)

(Case No. 4047.)

Defendants' Counter Pracise in Case No. 4047 is identical in wording with that in Case No. 4045 printed on page 1279 of Vol. II.

ORDER SETTLING CONTENTS OF RECORD.

(Entered July 6, 1935 by Paul Jones, Judge.)

(Case No. 4047.)

Order Settling Contents of Record in Case No. 4047 is identical in wording with that in Case No. 4045 printed on page 1279 of Vol. II.

ORDER FOR WITHDRAWAL OF EXHIBITS.

(Entered September 4, 1935 by Paul Jones, Judge.)

(Case No. 4047.)

Order for Withdrawal of Exhibits in Case No. 4047 is identical in wording with that in Case No. 4045 printed on pages 1280 and 1281, both inclusive, of Vol. II.



THIS ORDER BY THE COURT GRANTED INTO
THEIR RESPECTIVE TO BECOME THEIR
21.02

EXHIBITION OF RECORDS OF RECORDS
IN CASE NO. 4047 IS IDENTICAL IN WORDING WITH THAT IN CASE NO. 4045
PRINTED ON PAGES 1280 AND 1281, BOTH INCLUSIVE, OF VOL. II.

**ORDER EXTENDING TIME FOR FILING TRAN-
SCRIPT OF RECORD IN UNITED STATES CIR-
CUIT COURT OF APPEALS.**

(Entered September 25, 1935 by Paul Jones, Judge.)

[Case No. 4045.]

It is hereby ordered that the time for filing the Transcript of Record in the United States Circuit Court of Appeals be and is hereby extended to and including October 10th, 1935.

Paul Jones,

United States District Judge.

Subject to the consent of the Court, the parties hereto, by their attorneys, consent to the above Order this 25th day of September, 1935.

Evans & McCoy,

Attorneys for Plaintiffs.

Kerr, Hudson & Kerr,

Attorneys for Defendant.

PRINTER'S NOTE:

An Order Extending Time, identical in wording with the foregoing, was entered September 25, 1935 in each of cases Nos. 4046 and 4047.

CERTIFICATE OF CLERK

NORTHERN DISTRICT OF OHIO, ss.:

I, F. J. Densler, Clerk of the United States District Court within and for said district, do hereby certify that the foregoing printed pages contain a full, true and complete copy of the records and all proceedings in the consolidated causes of Nos. 4045, 4046 and 4047 Equity, including the petitions for appeal, assignments of error, orders allowing appeal, bonds on appeal, and other pleadings in accordance with the precepts for transcript filed herein, the originals of which papers, except certain original exhibits withdrawn by leave of court, remain in my custody as clerk of said court.

There are also attached hereto and transmitted herewith the citations issued and allowed herein.

In Testimony Whereof, I have hereunto signed my name and affixed the seal of said court at Cleveland, in said district this day of October, A. D. 1935 and in the one hundred and sixtieth year of the Independence of the United States of America.

F. J. DENSLER, Clerk,

(Seal)

By C. B. WATKINS,

Chief Deputy.